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ROYAL COLLEGE OF
DENTAL SURGEONS OF ONTARIO.

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No. 1.

THE APPROXIMAL SHIELD,

For Bicuspid and Molars.

BY W. H. GATES, D. D. S., PHILADELPHIA, PA.

The record of the operations for the arrest of decay on approximal surfaces is not a happy one. In the whole history of dentistry, indeed, this has seemed to be the special field of difficulty. Careful operators whose fillings on other surfaces of the teeth have proven permanent, have here failed; and not from mechanical incompleteness, but through the disregard of a natural principle of design. From the non-restoration of an important natural safeguard the most perfect operations sooner or later give way, or become so seriously undermined as to require renewal. This safeguard is seen in the natural contact of the teeth, whereby a succession of strong arches is made to overhang and protect their cervical margins and the festoons of the gum from the confined presence of particles of food.

The necessity for this contact of the crowns for the protection of the cervical margins is very clearly indicated by their natural drift and anatomical arrangement. Standing in line in the jaw, that marvellous force, hidden like an instinct in each tooth, is constantly rendered apparent, impelling them from both ends of the line towards that contact and their common centre at the front; and the greater elevation of the alveoli between the teeth, surmounted with its thick festoon of gum, shows the design to also ward off the lodgment of food, from a lateral direction.

But if the approximal arch (formed at each contact of the crowns) is cut apart, and the food, with its direct driving force rendered effective by its confined passage between the crowns, comes against this delicate festoon-shield, what can happen but the recession, slow it may be, of the alveolar process beneath, and the gradual depression of the festoon, until, its outline reversed, it is transformed into a receptacle for the very agents of destruction—to guard the slender necks of the teeth against which was its special function—and thus decay commences in the wall of each tooth below the line of the gum, with but little depth to

reach the pulp, little or no enamel for margins to the cavity, exalted sensitiveness in the dentine, and the certainty of a serious operation necessary, by ordinary modes of practice, with still only small prospect of saving the pulp alive.

Results like these have accumulated until the demonstration is conclusive, even to former advocates, that there is something radically wrong in the system of spacing, as it has been practiced; but this conviction was long delayed, because of the one strong redeeming point therein that always held its own; for it cannot be doubted that incipient decay on so much of surface as can be made really self-cleansing may be permanently interrupted. The belief that an entire approximal surface could be so protected was fallacious, because, however self-cleansing the space itself might appear, the curving outlines of the teeth, contracting towards the neck would always induce lodgment; and because of the consequences already referred to of exposing the festoon of the gum to the destructive force of mastication.

Permanent spacing for access to cavities only, from having been for so long the only method of practice, has been responsible for the great burden of unhappy experiences, for the countless failures of fillings that were undermined, renewed and re-renewed, to the great discomfort and annoyance of patients, to the chagrin and, how often, to the disparagement of most faithful operators. How often an approximal surface has become at last one broadside of gold or amalgam, or the forceps has intervened to the relief of both patient and operator.

Upon the removal of a tooth so situated, who has not observed the significant and beneficial effect upon the approximal surface of the tooth adjoining—the tendency to decay giving place to conditions of improvement.

Out of experiences and suggestions similar to these, have come the laudable efforts already made to restore the approximal arches when yielding to decay; but the restoration of contour, by building in gold, is far from an ideal method.

As a matter of taste, the employment of gold or other material for filling operations must be limited to the least possible display. If arranged to show but little, gold may even seem ornamental in the teeth, but it cannot occupy their exposed surfaces to any great extent without seriously impairing the beautiful effect in their natural arrangement which results more from their combination into graceful arches, that contrast effectively with the lips and other muscles which play around them, than from their individual beauty; and to no matter in the whole arena of art can the rule, that the highest art is the best concealed, apply with greater force than to this where the intervention of incongruous material mars the general as well as the local effect; and these inartistic displays are also distasteful because they render conspicuous a physical defect.

There are also objections to contour-in-gold operations that have a purely practical bearing. They are too exacting of exceptional skill, of means and of physical endurance, to meet the great and pressing need. So small a proportion of the waiting public can command the first two, and will endure the third, that not a tithe of the teeth are saved that ought to be, and would be, if the conditions were less exacting.

These views and convictions have not come from a hasty survey, but are the outcome of experience in a persistent search for some simple and practical method of overcoming the difficulties in question. Especially suggestive did I find that extreme method of practice known as the Arthur system of spacing. Enthusiasm at such a simple and apparently practical method, was slowly replaced by grievous disappointment as sensitiveness, and finally softening of the dentine appeared at the cervical margins. Boldly then, in the courage of despair, I supplemented that method by bevelling off the curved angles produced by the cut at the buccal aspect, the clinging of the food around which seemed to be the cause of the trouble. These points relieved, the recession of the alveolar septum and its festoon of gum next attracted my attention—the two curved outlines of the necks of the teeth, at the base of the cut, appearing to view where the festoon had previously covered them. This was the last straw, as to make these self-cleansing would be to cut below the level of, and leave two highly sensitive surfaces within a depression of the gum; and, from the numerous cases that came under my observation, not only in my own practice, but that of other and distinguished members of the profession showing the same results, the conclusion was forced that the direct pressure of mastication, improperly permitted to enter there, was, in fact, the principal cause of failure of that method of practice of which such high and sanguine hopes had been entertained.

As time rolled on, these cases came back to me for filling. Gutta percha—always so useful—here came happily to my relief. With it I filled one cavity to the level of its margins, but from the other I allowed it to project across—partly filling, but effectually bridging for the time—the depression in the gum. The effect was delightful; the dentine was soothed, the gums were healed, and ere long this arrangement appeared to me as the proper model for a permanent *approximal shield*. But the gutta percha shield was invaluable for temporary and preparatory purposes—one being to wedge the teeth apart sufficiently to regain their original tendency to close up. This it would effect under the force of mastication so gently as not to be felt. I found this often the better plan, as it gave time for the sensitiveness in the dentine to subside before the final and more thorough excavation of the cavities.

The next step, which I took with some misgivings, was to replace the gutta percha with amalgam, and in the same order; but the results, now confirmed by several years of experience, in which only slight modifica-

tions of the first experiments were found desirable, has proven a most gratifying and undoubted success. The modifications consist in carrying the amalgam more perfectly against the gum and reducing the thickness of the shield, leaving a close, compact bulwark over the gum and rising so slightly above it as to be practically concealed from view.

This shield-filling, therefore, is intended to protect the cervical margins of approximal surfaces and the contiguous gum with the least amount and display of filling material; and, as the necks of the teeth are generally less separated from each other than they seem, the amount required is surprisingly small, and is easily, although it deserves to be most carefully, arranged in place. There is neither room nor occasion for rubber dam, and sufficiency of retaining-grooves are obtainable with the minimum of pain; in fact, if we give just a little incidental attention to the temporary shields, while we attend to the gold work elsewhere in the mouth, and see that they do not get forced too heavily against the gum, the sensitiveness in the dentine will in a few months greatly subside, and not only so but a positive reparation—especially a defense against thermal shocks—is set up, therein assuring safer, and rendering possible more thorough, results.

The shield ordinarily, in making, will partly cover the plain filling in the adjoining cavity, which, although made at a previous sitting, must at the last moment, when dry, be coated with liquid gutta percha, varnish or oil, to prevent adhesion; and to be sure as soon as set, a thin blade should test between them. I find spunk pressed up at the outer and inner ends of the cut of excellent service—keeping dry and assisting to make compact. In some instances I make the shield-filling somewhat thicker to insure its safety from breakage, and afterwards shape it down with a disk, as, if the shield is thin at its free edge, it is much safer against the admission of any fibres of food that might produce a wedging effect. I have never known food to get under the shield. There is no opportunity, as there is no space. The gum being thoroughly protected ceases to recede, and the cervical margins, from the self-cleansing effect, are wonderfully preserved from decay. For this latter reason the approximal shield seems superior to any arch whatever, whether artificial or natural. If incipient decay commences in the arch near the masticating surface it should be cut out and polished—not cutting through, nor going beyond, the limit where a perfect shoulder may be left, until subsidiary cavities are definitely formed in which an approximal shield may continue protection in the future. Nor need we fear to detract from the beauty of the teeth by such cutting, as it is neither necessary in the first instance, nor often desirable in making the shield, to cut more than two-thirds the distance to the gum—reserving beyond that all that we can of the lateral walls of the cavities. The removal of this shield for extension, in a few instances where unfavorable occlusion was slightly forcing the teeth apart, revealed interesting proof of its efficiency in not only pro-

- tecting from decay, but causing solidification (no longer sensitive) of surfaces of exposed dentine, against which, outside the margins of the cavities, it had simply been closely packed. Perhaps the most satisfactory result that I have observed has been an entire success with very soft teeth, wherein gold fillings in the same situations, from being undermined, had frequently to be renewed.

As to the presence of the shield-filling between the teeth, if properly formed, it is simply forgotten by the patient; and the condition being self-cleansing, the use of the brush only is necessary.

To have such results, can we not well afford to lay aside our objections, especially those ill-founded, to amalgam. There will always be employment for our highest skill outside the dreaded ordeals that, associated with rubber dam, cohesive gold, and merciless retaining points, pertain especially to these approximal surfaces of the bicuspid and molars.

On another occasion I purpose to speak of a method of rendering amalgam fillings inconspicuous by facing them.

CELLULOID.

(CONTINUED)

BY FRANK R. FABER, D. D. S.

Mechanic to the profession, Philadelphia, Pa.

Having decided that the case is favorable for celluloid secure the impression in plaster. Cases that are suitable for celluloid can almost always be taken in plaster. Stain it with a thin shellac varnish. After this has dried cover it with a thin coat of sandarac varnish. This is the best separating medium I have ever come into contact with for this purpose, it leaves a dense, polished surface to the model, which is less likely after this treatment to suffer the slight abradings, during the after manipulation, from soft spots on the surface, which sometimes occur when oil, soap, or other preparations are used. The ingredients of this varnish are gum and alcohol, nothing else. After it has dissolved, pour off into a wide-necked bottle, and it is ready for use. Use it thin, the shellac merely to stain the plaster, and just enough sandarac to produce a polished surface. If too thick varnish is used, it will fill in the fine lines, and the model will be worthless. The plaster for making the model should be of the quality known among men who deal in the article as casting plaster, and is very much better than the plaster generally used by dentists, which is known as facing plaster. It is coarser and stronger, and takes a longer time to become hard: should be poured thick, and settled into place by jarring; if mixed thin it shrinks considerably. A die and counter die are then gotten out, and a block tin plate struck up of about the thickness of base plate wax. This will

furnish you with a good idea of your impression. If it fits, your chances are good ; if it does not, your chances will generally correspond. This method is the best for taking bites and articulations, and for trying the teeth in the mouth before finishing, for, if properly made, it will fit and stay in place. Carve the wax for length and fullness, and let the patient mark it with the occluding teeth, if there be any. If the case should be an upper one, take a wax impression of the lower teeth, the model of which is to be used in place of allowing the patient to sink the teeth into the articulation wax, thereby altering the length and fullness. Place the two models in position upon an articulator and fasten the set screws. Select the teeth—plain teeth to be used—according to the temperament and features of the patient, bend the platina pins down, not far enough to touch the porcelain, but far enough to preclude any possibility of exposing them while finishing. Arrange them in position upon the tin plate. Here the artist can display the utmost carelessness or the most refined skill. A short, broad, yellow tooth, will not do for a long-faced patient of bilious temperament, neither would the long, narrow-necked, dark blue tooth do for a patient of sanguine temperament. Teeth are purchasable for all the different conditions of temperament, so there is no excuse for carelessness in this respect. When the teeth are mounted and secured in place with strong wax they are ready for trial in the mouth. If the occlusion, length, etc., are found to be correct, the case is ready to be waxed. As much wax may be put on as you may want celluloid, and no more. It should be carved and festooned to imitate nature, the rugæ placed upon the palatine surface, the depressions back of the canines and above the bicuspid noted, and the fullness of the roots carefully observed. Two pieces of tin foil, “No. 60, rolled,” are then cut ; one in the shape of a horse shoe, to go around the front ; the other shield-shaped, to cover the palatine surface. These are placed into position and burnished down, care being taken that the foil gets everywhere it is intended that it should. Go over it with a pointed instrument, and slightly dent the foil into the wax, being careful not to perforate it ; everywhere you do there will be a piece of foil in the celluloid plate. Turn up the edges of the foil about one-sixth of an inch all around the palatine piece and around the upper edge of the front piece. Invest in the shallow side of the flask, with the heel of the model depressed, keeping the wax and foil about one-eighth or one-sixteenth of an inch above the investing plaster. Varnish the plaster only with sandarac and pour the top, care being taken to exclude all bubbles of air. The same kind of plaster is used for investing as for the model. When the plaster has set, separate the flask immediately, and remove the wax by pouring boiling water upon it. After the wax is all out, take a pledget of cotton between a pair of tweezers, and moisten it with alcohol or benzine, and wash off the surface of the foil. This will remove a black sediment which the water leaves, and which will stain

the celluloid. Cut the waste gates large, with the inlets for the celluloid to get into them small, care being observed not to let the celluloid come into contact with the flask or it will take fire. Select the blank. All the pressure that the plaster will stand is to be brought upon the case. The more the material is condensed, or, I might say, the less it is allowed to expand, the longer it will last when finished.

Dry heat machines are the best. The two of my preference are the New Mode Heater and the Best celluloid apparatus. The New Mode, aside from some objectionable features it possesses, will more effectually break up the disposition of the material to return to its original shape than any other apparatus I have ever known. Place the flask in the oven, bring the mercury to 320° Farenheit, then let the steam which has arisen from the plaster, out; open the door; take out the flask—be careful for it will be hot; place the blank in position; put the flask together, and place it in the machine; put on the glass door; keep the heat at 320° to 330° Farenheit for about twenty to thirty minutes, turning the screws gently at first, and increasing the pressure toward the finish; cool gradually. The Best apparatus is placed in position with preferably two jets of gas under it, and allowed to heat for three-quarters of an hour, then fifteen minutes is consumed in closing the flask. Speed cannot be a desideratum in pressing celluloid, care being more necessary. When cold, cut the case out of the investment. I know of no better way to break the teeth than to jar the case out of the flask with a hammer. When the gates are cut off, a little chiseling done around the teeth, and the edges of the plate rounded and polished, the case is finished. The foil is very easily removed by raising the edge with a knife blade and stripping it off. For an attachment upon a metal plate, the upper edge of the plate around the front is turned to form a band, or one may be soldered on. The piece to form the cut or Cleveland chamber is allowed to extend up to the celluloid, and before soldering it fast, the edge, which will be in contact with the attachment, is bent up slightly. This will make a band inside and out, and will hold the celluloid firmly in place. After the attachment case is finished, the model and articulating teeth are placed in correct position, and a plaster articulator or spider made, which is to be preserved. With this guide the attachment can be replaced at short notice, should it become necessary. To replace a broken tooth, remove the porcelain and pins by heating them slightly and pulling out with pliers. Select the repair tooth, matching the shape as well as possible. Hold it between the fingers and heat the pins as warm as comfort will allow. Then press it quickly into position, or as nearly so as the heating will permit. Hold the labial or buccal surface of the tooth, “as the case may be,” near the flame of a spirit lamp. When the tooth is heated sufficiently, press quickly and firmly into place, protecting the fingers with a napkin. Wax up any little crevices that may exist between the tooth and celluloid. Invest in the deep section

of the flask, with the crowns of the teeth flush with the top of this part of the flask, leaving the plate in front of the teeth to be repaired bare, all other parts being covered. After the top is poured and hardened, separate, remove the wax, and put a thickness or two of heavy pattern foil in contact with the exposed portion of the plate. Bring the two sections of the flask together in the usual way, and the presence of the foil will cause the old material to be pressed up against the new tooth, securing it as firmly as before. If there be any loose teeth upon the plate they will tighten without any further preparation. This is the one and only way that celluloid can be repaired to be relied upon. Once in a while a repair piece can be added to an old plate which will remain firm, but it is the exception rather than the rule.

January 3d, 1884.

LIGHT: IN REFERENCE TO THE NEEDS OF THE DENTIST.

BY L. ASHLEY FAUGHT, D. D. S.

[Read before the Odontographic Society of Pennsylvania, Jan. 2d, 1884.]

Normal eyesight is of utmost importance to the dentist. This, and a healthy condition of the eyes, will depend in large measure upon having a good light by which to operate; although proper protection and careful usage at all times, other than the hours spent at the chair, are important. The "how" of this might well and appropriately be dwelt upon in this connection. It would, however, render my paper too lengthy and voluminous for its purpose, therefore, such fields have been omitted and the subject adhered to.

Every dentist in selecting a place in which to locate, is governed in his choice by two matters, which naturally force themselves upon the mind as of primary importance. His first thought is to find a community which gives evidence, more or less decided, that he will surely reap from it a satisfactory income. The second consideration is, that the office rent must not prove, to his detriment, too great an income to that community.

Among the various secondary considerations which throw side influence on the matter, is that which finds expression in the words so oft repeated, "of course, the light must be good." The meaning of this remark, if interpreted by an examination of what is accepted as *good* light in the many dental offices in such contrasting situations, is simply, a window placed to command an uninterrupted expanse of sky. Such seems to be the regard for, and to the minds of the profession generally, the chief important feature of, a matter which should be of paramount importance to every operator. The subject has hitherto been neglected in dental literature. Instruction being delegated to those,

whose whole wisdom on the point is summed up in their doctrine, "Plenty of light, from a northern sky, will answer every need of a dentist."

In studying the question of light with you, I start with the premise, that *good* light is indispensable to the dentist, and is necessarily dependent upon fixed scientific principles. The same light is not indiscriminately a good light for all operators, for the best light for one, may not be the best for another.

The room chosen for operating should be lighted by a single aperture, for a combination of lights throws a double set of shadows, which will prove exceedingly trying to the eyes. This aperture should be placed in the wall with its upper edge within an inch of the ceiling, for the light by which we operate should be drawn from as high a point as possible. Light derived from the lower half of an ordinary window, or from that portion of an aperture which is below an imaginary line, placed a foot above the plane of work, is of little use and detrimental to the eyes. The light we work by comes from the stronger centre above, and all lower lights will prove cross lights; conflicting with, rather than aiding, true and healthful illumination.

The light will be more even if the portion of the aperture, above the imaginary point indicated, be glazed by a single piece of glass, rather than with several panes. The portions of sash supporting many pieces of glass, make interruptions in the light, and throw shadows. Each separate pane has, too, a different power of refraction.

Whether this single aperture should face the north, south, east or west, or indeed, any other point of the compass, is a question that your essayist considers somewhat immaterial; provided, all other things necessary to a good light be carefully secured. Each direction appears to have its advantages or disadvantages. The northern light is, perhaps, the steadiest; the eastern light is, for the most part, a reflected one, at the time when the eye has borne the greater portion of the burden of the day; the southern light is too bright and sunny for effective work; while the western light possesses the condition, which may be an advantage, of growing stronger as the demand on the eyes for labor is made after the meridian of the day. The important feature in accepting any one of these facings is to remember that a steady light of a definite uniform intensity is what is desired, and if this exist not naturally, (which it seldom does) what is commanded must be moulded into this condition by suitable arrangements, before it is accepted for operating. It will fully repay every dentist to study to equalize his light, which will vary constantly with the time of day; period of the year; with the serenity or obscurity of the sky; and also with every passing cloud, which, at all times, but especially in the spring time, produces a constant and rapid fluctuation of light, distressing to a healthful eye and injurious to one diseased or overworked.

This study each must make for himself, after having reached certain limits which will prove common to all. A wavering light is worse than one in which the intensity is lowered. Too little light is apt to produce a near sighted condition. Too much, is the fault into which the majority fall; it over stimulates the eye. "Enough is as good as a feast," is the motto for this relationship. Beware of light which passes through white calico, ground glass, or any material calculated to give it a change of color. Such modified lights prove distressing to the eyes and increase their labors.

It may seem far-fetched, and possibly is a line rather closely drawn for ordinary application in daily use, but a recommendation to have the ceiling, floor and walls of the operating room positively black, is nevertheless in strict accordance with the scientific aspect of the subject of light for the needs of the dentist. This condition would cut off a large amount of useless reflection. It is a radical doctrine for æsthetic tastes, but I should be derelict in passing it without mention.

The direction from which light comes to the mouth of the patient is of great importance. It is universally agreed that for general art purposes, that which comes from the left is best. Almost all authority of scientific weight order that this be made the rule, and the Germans generally forbid the use of light from any other direction. The worst light comes from directly in front. It pains the eye, if intense; if moderate, it still inflicts an unconscious strain on the retina, by throwing upon it an illumination, which would be healthful if the eyes were not at work on small objects, but is a tax on a laboring organ. It is well, therefore, for the dentist to so place his chair that he shall derive his light from the left of his patient, and that all other light be cut off; taking precaution also that this light so strikes upon his work as not to place his eye in position to receive the direct reflected rays.

It would undoubtedly prove beneficial to the eyes of dentists if they be so shaded that the pupil be secured from interruption in its adjustment. For which purpose a shade, made of black silk, supported by wire, and fastened on a spectacle frame may be used. The eye cannot adjust itself while it is exposed to the stimulus of surrounding objects. The action of the eye is perfect in proportion as its adjustment is perfect. If defended from the intrusion of collateral rays, and only those from the object admitted, the eyesight is sure to be better, vision easier, and the eyes bear a longer strain with less fatigue.

Our study of this subject this evening has developed the following points:

- 1st. that the ideal operating room should be lighted by but a single aperture.

- 2d. That this aperture should be placed above and to the left of the plane of our work.

3d. That it should have but a single pane of glass, and that of even surface and density.

4th. That it may face any point of the compass, so that the light used has a definite uniform intensity.

5th. That reflection in our operating room should be reduced to the minimum.

6th. That the eyes should be shaded from the intrusion of collateral rays.

The teaching of the paper is, that the prevalent custom of dentists of operating in rooms constructed with the usual means of illumination, is exceedingly detrimental to the conservation of good eyesight; and that they should use only a room constructed or modified for the express purpose of dental illumination.

ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

The regular monthly meeting of this society was held on Wednesday evening, January 2d, the President, Dr. L. Ashley Faught, in the chair.

After the transaction of some routine business, the essayist, Dr. Faught, presented a paper on "Light: in reference to the needs of the Dentist." (The full text of this paper appears upon another page of the present issue.) It was listened to with marked attention, and generally discussed.

Dr. Boice had experienced much discomfort from the rapid and frequent readjustment of the eye, necessitated by directing the line of vision from the operation towards the light to reach an instrument, a piece of gold, etc., etc. As we usually operate with back to the light, he suggested the advisability of having a bracket or stand so situated that this difficulty could be overcome; for instance, at the side or a little behind the patient's head, instead of in front.

At different times, his chair had faced each of the cardinal points; now uses a southern light, which he considered very trying to the eyes, and much preferred a northern light, at all seasons of the year.

In selecting an operating window would avoid such as was affected by the proximity of strong reflecting surfaces, as the white walls or shutters of adjoining or opposite houses.

He considered a clear space, with an open expanse of sky, essential to a perfect light.

Dr. Stellwagen, at the outset of his studies in dentistry, twenty-five years ago, had paid much attention to the light for operating. Thus, early having regard for the care of the eyes, he to-day enjoyed the fruits of that effort. It must be recognized by all that the eyesight is of the gravest importance to the dentist, and nothing can be considered as an acceptable equivalent.

Careful inquiry proved that engravers, mathematical instrument makers, and those following most of the more delicate and refined trades where skill was largely dependent upon eyesight, were unanimous in their testimony in favor of a northern exposure, because of the comparative steadiness of the light and its freedom from objectionable glare, the eyes are less fatigued and the work more evenly and comfortably performed.

Under this light the eyes of the operator will probably last much longer and his work be much more satisfactory.

So powerful were these considerations that the speaker had never tried any other light for anything more than a casual operation, and he attributes his general condition of comfort and health with his eyes, as largely due to this precaution in the use of light.

The shadows produced by cross-illuminations, can be minimized by setting the chair very close to the window. He seemed to question whether the somber aspect of the operating room, when painted black, would not be apt to do more harm than good; for the not over inviting room, at best, would then seem to be a funeral chamber of unknown horrors.

Dark shades of red, brown, blue—and perhaps best—green, could be substituted, and thus answer much the same purpose as black, without the sad associations.

To illustrate, he told as an anecdote, the offer of one of his patients to adorn the office of the dentist with such mottoes as: “Abandon hope, all ye who enter here.” “Ye who have tears to shed prepare to shed them now.” “Oh! aching time; oh! moments great as years.”

To guard against glaring reflections outside, he had planted trees and vines to cut off the view of white shutters back of his office, and the fences, screens, etc., of the back yard, upon which his window opens, were painted a mellow shade of ochre, or creamy tint similar to the paper recommended by ophthalmologists for books.

The comfort of the patient is by this means enhanced, and his eyes are spared the trial of sudden and severe changes. To entertain and distract the patient's attention, to lessen his suffering by removing all unnecessary irritations and inviting a condition of calm, are considerations of importance, secondary only to the scrupulous avoidance of needless pain in performing our operations. He wears a coat of pongee silk, that in color and texture is soft, not glaring or dazzling, and is likewise capable of being kept clean by washing. The motto of the great Napoleon—“a hand of iron in a velvet glove”—might be modified to read for the moderns,—a dentist should possess one of steel within soft rubber and plush.

Dr. Chupein operated by a southern light. He thought he would much prefer a northern light, but his office was so located that he could not have the latter. He was much annoyed by the sun shining right in

the patient's face from the southern light, between the hours of 11 and 1 o'clock during the winter months, which kept him raising and lowering a semi-transparent shade at his window according to the varying intensity of the light. The northern light was known to be a steady light, and was sought by engravers, photographers, and all other artisans requiring such a light.

He had often thought, however, that we wanted a light of various intensity—a sameness was undesirable—it was the occasional light and shade that brought out the objects we looked at or worked upon in better relief; as the poet, Moore, says:

“There's a beauty forever unchangingly bright,
Like the long sunny lapse of a Summer's day light,
Shining on, shining on, by no shadow made tender,
'Till love falls asleep in the sameness of splendor.”

Dr. Phraener had worked with a northern, eastern, and southern light; was now using a window with a southern exposure; found it necessary during the middle portion of the day to modify the light by means of shades and curtains, but could not always produce the desired results. He considered a northern light as best adapted to dental operations.

Dr. Wunderlich also had used the same lights. His operating room now has a northern exposure, with sky-lights—has much more satisfaction than ever before.

Dr. Jos. R. C. Ward stated that he had not made the subject of “light” a study, and had very little experience with different lights, as he had only practiced under the west and north light, but the remarks of the other gentlemen present called forth some thoughts from him. He found the west light decidedly objectionable on account of the sun. To interpose a screen or shade to keep it out, takes away your direct light. The same would apply to the east and south. He, therefore, believed that the north light was the only proper one for the dentist.

He had none of the outside objections spoken of by Dr. Stellwagen, as his office faced on a side street, on the other side of which was an open lot extending to the street beyond, so there were no “white fences” or “white shutters” to give him the objectionable reflections, and being in the second story, he avoided the reflections from cars and passing vehicles.

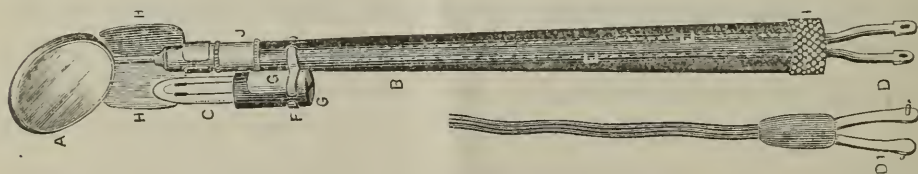
He overcame the objections spoken of by Dr. Boice by having his foil and plugging instruments, upon a small, round table, which he placed to the right and rear of his patients, so that he sat or stood with his back to the light during the operation of filling, and thus avoided the reflections from the instruments on the bracket between him and the window.

As a relief to the eyes of his patients he placed an aquarium on the outside sill of his operating window during the spring, summer and fall,

the growing plants, moving fish, etc., relieving the strain upon the eyes, and giving occupation to the mind. His patients had frequently spoken of this attraction, and sadly missed it during the winter.

Dr. Cryer, after making a few remarks on the paper read, stated that while practicing dentistry in England, especially in London, he found that it was very often necessary to use artificial light of some kind. Of the many different ones the best which came under his notice was a contrivance by Mr. J. S. Dickin, L. D. S., of Southport, England. It consists of a small Swan's electric lamp, fixed on an ordinary long-handled mouth mirror. The one Dr. Cryer exhibited, and which is represented below, is the same as that used by Mr. Dickin, with the exception of the substitution of a hard rubber handle for that of wood, the wires passing inside the handle instead of outside; also a modification of the binding posts *d d* and the sleeve *f*.

FIG. 1.



A, mirror; *b*, hard rubber handle split down the centre; *c*, a small Swan's lamp; *d*, binding posts for the connection of wires *d* from battery; *e*, *e*, insulated wires running in grooves of the handle to two uprights *f*, being a sleeve to which they are soldered. They hold the lamp in position, and also make the electrical connection through the brass plate *g* on each side of the lamp. *H*, shield acting as a reflector and guard; *i*, and *j*, two ferrules screwed on the ends of the handles holding the split halves together. A battery, consisting of two Bunsen cells, is about the power required to make the light.

After explaining the apparatus, Dr. Cryer connected it with a battery and several mouths were examined by those present. It illuminated the whole mouth, teeth and gums, showing every imperfection in the teeth, also the fillings; the strength of the light being such that there was no difficulty in detecting a devitalized tooth by the difference in its translucency. The silver shield *h* acts as a guard to the lamp, at the same time will hold back the cheeks or the tongue. There is not enough heat evolved to cause discomfort, though sufficient to keep the mirror warm and prevent moisture condensing upon it.

Dr. Cryer has so broadened the usefulness of the instrument by his improvements, that the mirror can be detached, a smaller one put in its place, and the appliance can be employed as a laryngoscope or rhinoscope.

With the lamp in the mouth, and the lips closed, the light was reflected to the pharynx through the posterior nares, and also, by transmission through the tissues of the roof of the mouth, illuminated the entire nasal chamber.

FIG. 2.

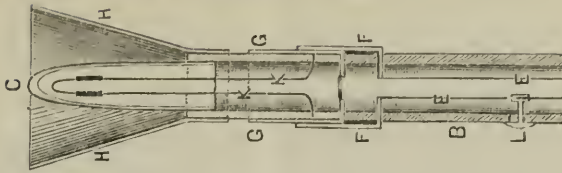


Fig. 2 is a modification of the above, and shows a shortened sectional view. *B*, the handle; *c*, lamp; *e*, insulated wires in connection with the sleeve *f*; *g*, brass plate on side of lamp; *h*, thimble-shaped reflector, which causes the light to be thrown forward and prevents the eye looking directly upon the light; *h*, wires in lamp in connection with *g*; *c*, a slide working in a slot, breaking and establishing the electric current when desired. This is not shown in Fig. 1. Thus it is converted into an instrument which, in connection with the speculum, will be of great value in examinations of the vagina, and other external openings of the body. This would relieve the physician from the dangers and annoyances resulting from the employment of lamps, and lights of all descriptions at present used in such examinations.

[The examinations, as made by several members, demonstrated the practicability of the instrument, and suggested the probability of a wide range of usefulness. We have never seen the contrast in translucency between a healthy tooth and one with a devitalized pulp so distinctly brought out as with this instrument. In fact, the whole outline of the pulp-chamber could be clearly distinguished.—ED.]

ODORS IN THE DENTAL OFFICES.

The office of a dentist should be as free from odors as a private parlor. Creosote should be replaced by carbolic acid, which will be found as effective for all treatment of pulps or abscesses.

Iodine, oil of cloves, eucalyptol, etc., should be kept in glass-stoppered drop bottles. The stopper which acts by expansion of air in the bulb is very convenient, as the instrument can be held under the drop and all danger of poisoning the contents of the bottle avoided; when the instrument, freshly drawn from an offensive root-canal is dipped into the bottle, this danger exists.

Instruments that have been used with any of the above medicaments should be laid upon a special tray which can be washed with them, and all napkins which have come in contact with them should be carried out of the office at once.

If the instrument case be once charged with the fumes of creosote or iodine, years will be gone before the smell has done so, and patients who are not fond of those odors will be unfavorably impressed upon entering the office.

W. C. HEAD.

LONGITUDINAL GROOVES IN TEETH.

BY CHARLES E. FRANCIS, D. D. S., M. D. S., N. Y.

[Read before the Dental Society of the State of New York.]

The labial surfaces of canines and incisors, and the buccal surfaces of bicuspid and molars at their cervical borders, are not unfrequently found denuded of a portion of enamel. The dentine underlying, which is thus exposed, presents peculiarities somewhat varied in the mouths of different individuals. In some cases it is of a semi-cartilaginous character, and walled by jagged margins of enamel, chalky in color and texture, and when excavated the decalcified structure peeling out in leathery layers. In other cases the dentine becomes discolored, is more dense, yet is easily penetrated by sharp cutting instruments. Some teeth exhibit smoothly polished furrows running horizontally across their surfaces near the festoon of the gum, as if cut with a file or a disk. In such cases the dentine is usually dense and difficult to cut, and the adjacent enamel retains its normal aspect.

Instances occur where these grooves extend far beyond the territorial border of enamel, and deep into the cementum, which is left exposed by the receding gum and absorbed margins of alveolar process.

Occasionally the gums present the appearance of having been worn away by friction—looking compact and exhibiting a healthful glow, while in other cases they are purple and tumid, extending forward or overhanging the cervical line of each groove.

While in many instances these furrows are highly polished and dense, as if the result of much friction, they are sometimes found to be badly stained, suggesting habitual neglect. The teeth of both arches are subject to these lesions, and often become seriously injured or quite destroyed.

The destruction of tooth structure is not confined to the adult teeth, but may occur at an early age, the disease first manifesting itself where the tooth brush is used, or by a touch, as with the finger nail, near the margin of the gum. Careful examination reveals, at first, a small defect or apparent abrasion at the periphery of the enamel.

Patients ask the cause of this sensitiveness or why those grooves appear? The replies they receive usually accord with the degree of illumination parties thus interrogated possesses, and are sometimes rather vague. Opinions concerning the cause of this trouble are somewhat at variance, and text books give it a little light. It is said to be the result of chemical action, either of an acid or an alkali. It is also attributed to mechanical abrasion, or too much rubbing with stiff brushes and coarse dentifrices. This latter idea serves as an excuse with some people for suffering their teeth to become loaded with calculus and other mischievous deposits.

Teeth are found grooved, not only on their labial and buccal surfaces but sometimes are nearly or quite girdled, and the furrows, not unfrequently, are smoothly polished, even in places where the tooth brush would hardly reach—certainly with too little force to polish such channels. It would seem, however, as if surfaces so smooth and dense were marked evidences of attrition, and it is also reasonable to presume that the disturbance was first produced by chemical agency.

The mucoid secretions exuding from minute follicles around the teeth collect and find lodgment just without the margin of the mucous membrane on their cervical borders. These deposits combine more or less with extraneous accumulations, and, being subjected to the heated temperature of the oral cavity, will in due time, undergo fermentation. Acids thus generated and in direct contact with the enamel, hour after hour, for weeks, months and years, would naturally tend to impair its integrity, and especially so in low-toned teeth. Parts thus eroded, if exposed to much friction by the use of a brush, would probably become polished; and perhaps even the ordinary movements of the lips or tongue, or the comminution of tough and fibrous food in the process of mastication, would exhibit similar results.

So Mr. President; it seems to me that there are two agencies at work to produce such conditions as I have attempted to describe.—*Odontographic Journal*.

DENTAL CARIES THE RESULT OF CIVILIZATION.

BY DR. S. H. KING, LINCOLN, NEB.

In the October number of the *Dental Practitioner* appears an article from the pen of Dr. W. C. Barrett, of Buffalo, in which he gives the result of an examination of several hundred skulls of pre-historic races, at the Peabody Museum of Archæology, Cambridge, Mass., made with a view of determining whether or not dental caries is a modern disease.

I desire briefly to review the facts therein contained, and see if Dr. Barrett is justified in the conclusions which he draws therefrom. He says he examined two hundred skulls of adults of the ancient Peruvians. Of these "one hundred and two presented indications of oral disease, forty-three possessed a perfect dentition and evidence of healthy mouths; the remainder were in such a state that it was impossible to determine their condition at death." Therefore there were only one hundred and forty-five of these specimens examined by the writer which were of any service to science, and of those he finds thirty per cent. perfect dentures, without trace of dental or oral disease. Does Dr. Barrett imagine that he can find in each hundred adults of the civilized nations of to-day, thirty who have perfect dentures without trace of oral disease? I doubt if he would find three.

He also speaks of the evidences of alveolar abscesses, absorption, calculus, etc., which he found in these specimens, which might naturally be looked for as concomitants of the other conditions stated.

But the great mistake the doctor makes is in presuming that this "people of whom these bones were relics * * * were not contaminated by the vices of modern civilization, but lived a life that was as near the typical natural one as the most conservative foggy could desire." Now, had the writer consulted *Bollaert's Antiquities, Ethnology, etc., of South America*, he would have learned that this people whose remains he examined were quite advanced in civilization, and though not very modern, probably had similar vices.

Their civilization and culture is clearly attested by the ruins of their large cities, in which were found many fine works of art. Their architecture was adopted by their successors, the Incas. On the shore of Lake Titccaca are the ruins of Tiahuanacu, containing sculptured monolithic doorways, pillars standing in lines at regular distances, immense masses of hewn stone some thirty-eight feet long by eighteen broad, and colossal statues thirty feet in length. The ruins of this supposed capital of an ancient government are situated nearly 13,000 feet above the sea level, its altitude rendering it a frozen desert. Twenty-five miles south of Lima are the remains of another city which this people inhabited, in which was a magnificent temple. "When the Peruvians of Cuzco carried their victorious arms across the Cordilleras to this district they beheld this temple, the doors of which are said to have been of gold inlaid with precious stones; they were astonished, not only because it surpassed in splendor the famous Temple of the Sun at Cusco, but because it contained no image or visible symbol of a god. It was raised in honor of an invisible and mysterious deity whom the inhabitants called Pachacamac (the Creator of the world). The conquerers did not dare destroy this temple, but contented themselves by building beside it a Temple of the Sun."

It is justly claimed that the enlightenment and civilization of a people may be correctly estimated by their religion. If we apply this rule in judging this Pre-Incarial nation, we must conclude that they were in a far more advanced state of civilization than were the Incas. Sufficiently so at least to have learned the culinary art, and to this may be attributed largely the abnormal condition in which are found the teeth in their remains. Yet, according to the data furnished by Dr. Barrett, these people, without dentists, suffered only a tithe of what the civilized people of the present time do.

The only other definite results which the doctor gives of his investigations, are of the skulls of seventy-five of the ancient mound-builders; of these, twenty-seven (thirty-six per cent.) were free from disease, and only thirty-two cases of caries, or, in other words, sixty per cent. were exempt from caries of the teeth.

What the habits of the mound-builders were must always remain a mystery, but their rude implements and vessels of pottery would at least indicate that they too were in a measure posted in the processes of preparing toothsome viands.

An astronomical calculation, based on a few seconds of an arc, is always accepted with the probability of great error. So, if we go back but a few hundred years, which amounts to but a small part of the great cycle of time since the advent of man on this planet, we must remember that we do not find him in his "primitive glory," and probably the nearest type of this ideal being we shall ever behold is found in the gorilla, chimpanzee and ourang-outang. If the reader objects to such an ancestry, he may embrace the Digger Indian as the most primeval specimen of genus homo, and among all these he will find no more dental lesions than among the brutes, which, by the way, are not wholly exempt from them.

Dr. Barrett says he "went there a believer in the modern origin of dental lesions," and, substantially, that the habits of civilization were responsible for not only these, but other physical defects. But these investigations seem to have knocked the bottom out of these theories, as he says "they will not hold water."

Respecting this modern origin, the doctor has been corrected in his opinion.

In the mouths of the mummies of ancient Egypt are unmistakable evidences of the same dental defects which are troubling their posterity.

But, with him, I have long believed that habits of civilization—the preparation of food in such manner as to deprive it of essential nutritive elements, also rendering it soft and pulpy by culinary processes, thereby exempting in a large degree the dental organs from the service of mastication, continued for unnumbered generations—have produced the results which we find to-day, and his investigations confirm me more strongly in this opinion.

The report from the mound-builders—those lowest in the scale of civilization—is more favorable than that from the ancient Peruvians, and either were troubled far less than are the higher civilized people of our time.

These dental defects, in my opinion, have been gradually growing upon the races during the long ages—since the time when food began to be prepared by fire, down through, perhaps, a thousand centuries. We learn from the best writers on the origin, development and modification of the species, that nature does not continue for an indefinite period to expend her forces in vain—in the production and support of organs which are not utilized and which changed conditions may render useless.

If the young man of leisure or sedentary occupation desires a good muscle, he cultivates it in the gymnasium. If "the coming man" follows our present modes of living, he must resort to dental gymnastics or his teeth must go.—*Items of Interest.*

GROWTH OF BOYS AND GIRLS.

The investigations of the Anthropometric Committee of the British Association have made more or less clear several interesting facts respecting the rate of growth of the two sexes in the British Isles. The period of most rapid growth is from birth to five years of age, and then both sexes grow alike, the girls being a little shorter and lighter than the boys. From five to ten the boys grow a little faster than the girls, but from ten to fifteen the girls grow the faster, and at between eleven and a-half and fourteen and a-half years old are actually taller, and from twelve and a-half to fifteen and a-half are heavier than the boys. The boys, however, take the lead between fifteen and twenty years, and grow at first rapidly, but afterward slower, and complete their growth at about twenty-three years, while girls grow very slowly after fifteen years of age, and attain their full stature at about the twentieth year. The tracings and tables show a slow but steady increase in stature up to the fiftieth year, and a more rapid increase in weight up to the sixtieth year in men, but the statistics of women are too few after the age of twenty-three to determine the stature and weight of their sex at the more advanced periods of life. The curve of the chest-girth in men shows an increase at a rate similar to that of the weight up to the age of fifty years, but it appears to have no definite relation to the curve of stature. The strength of males increase rapidly from twelve to nineteen years, and at a rate similar to that of the weight; more slowly and regularly up to thirty years, after which it declines at an increasing rate to the age of sixty years. The strength of females increases at a more uniform rate from nine to nineteen years, and more slowly to thirty, after which it falls off in a manner similar to that of males. The curves of strength for the two sexes are not parallel; at eleven years females are weaker than males by twenty-two pounds, at twenty years of age by thirty-six pounds. The fact that man continues to grow in stature up to his fiftieth year contradicts the popular notions on the subject, according to which he ceases to grow before he reaches half that age.—*Popular Science Monthly*.

PLASTER MODELS.

Models of rare cases that it is desirable to preserve, should be made of the best plaster-of-Paris, mixed with a concentrated solution of borax. They should be dried with care, and then put in a bath of paraffine colored with dragons' blood. The model thus prepared has the appearance of handsome Italian marble, and it may be cleaned and washed without injury. To increase the translucency more borax may be used.

To make a very hard model the plaster should be mixed with lime water, but such casts are not suitable for vulcanizing.

To increase the hardness of an already prepared cast it should be boiled in a strong solution of alum.—*Independent Practitioner*.

EXPLANATION OF TOXIC EFFECTS OF IODOFORM.

In a contribution to the *Centralblatt fur Chirurgie* (No. 48), Dr. G. Bouma, of Leyden, calls attention to the importance of examining all iodoform that is used for surgical purposes. Much of the drug found in the stores contains impurities, and from careful observation he is satisfied that the cases of iodoform-intoxication, which have been reported from some clinics, have been really due to the adulteration of the drug. In the clinic to which he is attached in Leyden, all the iodoform used is tested, and only *pure* iodoform is used. One specimen, which contained eight per cent. of impurities, after being rejected, was sold in another city, and the result was noticed that serious toxic symptoms appeared in one-half of the major operations, whereas, in Prof. van Iterson's clinic at Leyden, out of over three hundred cases in which pure iodoform was employed, only two cases presented symptoms of delirium, etc., and one with fatal results. Both of these were resections of the superior maxilla, in which tampons of iodoform-gauze had been used. Dr. Bouma is of the opinion that if iodoform be kept for a length of time exposed to light and air it may acquire poisonous properties.—*Medical Times*.

TREATMENT OF CHAPPED HANDS AND FROSTED FEET.

At a meeting of the Philadelphia County Medical Society, held November 21st, 1883, Dr. Carl Seiler called attention to the value of tincture of benzoin in the treatment of chapped hands and frosted feet. He had used it in a number of cases, with much success. It is applied by simply painting it on the skin. The stockings may be prevented from sticking to the feet by rubbing some oil over the benzoin.—*Polyclinic*.

THE QUERIST.

Under this head we propose to devote a few pages to those who are *seeking* information upon any particular point relating to the practice of our profession, and to those who are willing to *furnish* it.

We hope to make this feature particularly attractive and interesting. Those who do not care to send a longer communication can send a *question*, and we hope, occasionally, a *reply*, to some inquiring brother.

Here is a chance for you all. Don't be bashful—this is *your* department, and we believe it will be productive of much good. We invite inquiries upon any pertinent subject and will endeavor to have answers in the succeeding issues.

G. S., Iowa, writes, "Can you tell me any quick and effective way of cleaning dental-engine burs when they become clogged?"

Will some of our readers make "G. S." happy?

EDITORIAL.

PROSPECTUS.

1884.

The first volume of THE DENTAL PRACTITIONER was necessarily somewhat of an experiment. The second volume opens as a *success*. We say a *success* because our friends tell us so, and because our rapidly growing subscription list *proves* it.

We recognize that but a small amount of credit for this condition of things is due to ourselves, and we gladly concede it to those who have so kindly assisted us by their influence, and by their contributions to our pages.

To them, one and all, we extend our hearty acknowledgments, and we have ample proof that their efforts have been appreciated by our readers.

Without such support and appreciation no journal can remain long in field. We confidently trust we may receive a continuation of those favors to which the popularity of THE DENTAL PRACTITIONER is so largely due.

To those who have not favored us with their contributions, we would say, that our pages are open for the presentation and discussion of any subject likely to interest or instruct the DENTIST; and we cordially invite them to write out any new ideas or useful hints and send them to us for publication.

It is not necessary to write a long and elaborate article in order to have it acceptable to ourselves or our readers. Very frequently a short and pithy article, written to the point, contains more real solid information and usefulness than more *wordy* and elegantly written communications.

If you have anything, the knowledge of which will benefit your brother practitioners, and you can convey that knowledge in half a dozen lines, send it along and we will thank you; if you have something more elaborate to present, we will cheerfully give you as many pages. Never hesitate to make your offering because it is *small*.

The Editorial pages will continue to be absolutely and honestly *independent*. We acknowledge the right of every man to his own opinion, and while we shall not hesitate to express our own, upon occasion, will concede to all alike the same privilege.

We believe the change in appearance with which the second volume is inaugurated will be appreciated. Recognizing that there is plenty of room for still further improvement, we promise that with a continuation of your support and encouragement THE DENTAL PRACTITIONER shall never go backward. It is young, healthy, and *growing*; and we predict for it a brilliant and useful future.

The promptness with which our subscription blanks have been returned is a source of much gratification. We shall be compelled, with the present Number, to increase our monthly issue considerably over that of last year; but we can supply you all.

Just give us a hint that you would like THE DENTAL PRACTITIONER sent to you regularly for one year, by filling out the blank which precedes the advertising pages, and return it with 50 CENTS, to

GIDEON SIBLEY,

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APPROBATION.

PEABODY, KANSAS, Dec. 27th, 1883.

MR. GIDEON SIBLEY, Philadelphia Pa.

DEAR SIR:—I remember hearing a Methodist preacher say, when I was a boy, that he would “give a dollar for every new idea anybody would bring him.” If new ideas were then worth a dollar, are they not as valuable now after a busy lapse of twenty-five years or more? I think so, and especially so, considering the rapid progress made by the arts and sciences during the last quarter of a century. From your valuable *Practitioner* I have received *several* new ideas in the past months and am willing to trust it for fifty cents worth for the twelve months to come.

Cheerfully I enclose the required stamps.

Yours very respectfully,

L. E. DISNEY.

LINCOLN, NEBRASKA, Dec. 25th, 1883.

EDITOR DENTAL PRACTITIONER. * * * Hope to be able to furnish some original thoughts for your very interesting paper during the coming year.

Very respectfully,

S. H. KING.

DENVER, COLORADO, Dec. 26th, 1883.

GIDEON SIBLEY, ESQ.

DEAR SIR * * * Consider it an A 1 medium for information and the advancement of dental science.

Respectfully,

JOHN DRURY, D. D. S.

PHILPSBURG, PA., Jan. 5th, 1884.

DEAR SIR: * * * Continue *The Dental Practitioner* for another year, as I would not know how to get along without it.

Yours, &c.

M. B. WENGERT.

THE DENTAL REGISTER.

Among the many good things which we find in the current number of this journal, is "A New Department" under the heading "*Salmagunda*." As its title indicates, it is spicy, piquant, and full of "little tid-bits that taste so good and whet our appetites for that which is more substantial though, possibly, less digestible."

The editor, Dr. E. G. Betty, seems to be the right man in the right place. We wish him all success, and shall look for our monthly ration of *Salmagunda* with lively interest.

THE MISSOURI DENTAL JOURNAL.

After an honorable and useful existence of fifteen years, the publication of this journal has been suspended. We cannot conceive this to be the result of any fault on the part of its editors; they have certainly shown their ability to conduct a journal abundantly *worthy* of support, and it is not a pleasing spectacle that a publication of this character should be forced to suspend for "*want of support*."

Dr. Barrett, in the *Independent Practitioner*, truly says: "If we are to have a profession at all, it must have a literature. * * * * * Without schools and journals our calling would sink to the level of mere handicraft."

Our literature is a generous stream of information made up of journalistic rivulets, and flowing through the professional field where all have an equal opportunity to enjoy its advantages. Not one of these sources of supply can be cut off, or, in other words, no respectable dental journal can withdraw its influence, without affecting the whole profession.

We hope, ere long, to see the *Missouri Dental Journal* among our exchanges again, and that the dental profession will not be denied so fruitful a source of information as we have always considered it.

ACKNOWLEDGMENT.

By an oversight on the part of the printer, the article appearing in the December number, entitled "The Effects of Malarial Poisoning on the Dental Pulp," was not properly accredited.

The *Dental Cosmos* is entitled to the credit of first publishing the article mentioned.

Desiring in all cases to do unto others as we would be done by, we improve the first opportunity to correct the oversight.

THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

VOL. 2.

PHILADELPHIA, FEB. 15, 1884.

NO. 2.

EROSION OF THE HUMAN TEETH.

BY C. A. KINGSBURY, M. D., D. D. S.

(*Emeritus Professor of Dental Histology and Operative Dentistry in the Phila. Dental College.*)

The pathological condition of the teeth, known among dentists by the term *erosion*, appears to have been recognized at an early period of dental practice. John Hunter who lived more than a hundred years ago, and who probably wrote the best work on the Art and Science of Dentistry—that had ever been written up to his time, or for many subsequent years,—notices this as one among the many diseases to which the human teeth are subject.

Strange as it may be, a careful investigation will lead us to the conclusion, that among the various and noted writers on the teeth, from Hunter down to the present time, not one of them seems to have thrown much, if any new light upon this subject. In view of the wonderful progress in the various departments of dental art and science, the many new inventions and devices, the discovery of valuable remedies in the treatment of diseases of the natural teeth, and for supplying artificial substitutes in case of their loss, the power to conquer pain in operations the most painful in their nature, together with all our improved modes of practice, we may well ask—can there not be something new advanced, some additional facts presented or data discovered, in regard to the nature and etiology of erosion. The special variety, or form of dental erosion to which attention is called in this brief paper, is that which occurs in the permanent teeth of persons of adult and even more advanced age, and not to any of those lesions, or structural defects, which are supposed to be due to syphilitic taint, or some form of exanthematous disease.

For many years I have been deeply interested in this somewhat anomalous disease of the dental tissues, and have made it a subject of close observation.

Some three years ago, I read a paper on this subject before the Alumni of the "Philadelphia Dental College," an abstract of which was published if I am not mistaken, in the "*Dental Cosmos*." At the time of preparing that paper, I was conscious of a degree of humiliation in not being able to present a more satisfactory view of the subject; nor do I expect in what I may now say upon the subject, to do more than to excite inquiry, and possibly stimulate some one interested in dental pathology to such investigations, as may lead to a more exact and satisfactory solution of the questions pertaining to this difficult subject.

No doubt the peculiar characteristics of this disease are quite well known to the members of the dental profession generally.

I have noticed in my own practice, that the central and lateral incisors, and the cuspids, are the teeth more frequently affected; but have met with many cases where the bicuspid and first molars are also involved.

The erosive action is generally confined to the labial and buccal surfaces, forming grooves of varying depth in a transverse direction to the long axis of the tooth, and near the margin of the gum.

In some cases there is considerable sensitiveness present, on touching the denuded surface with the point of an excavator or probe. But in most cases I have heard no complaint of exalted sensibility of the part affected, until the grooves have reached a depth so as nearly to expose the pulp. And even where this has taken place, I have noticed that a reparative process was evidently going on for the protection of the pulp, by the formation of secondary dentine or consolidation of the dentinal tubuli.

In rare cases I have met with erosion upon the lingual surfaces of the inferior teeth. I have seldom, if ever, met with instances in which the erosive agent has produced grooves in a vertical direction upon the labial, or buccal surfaces of the teeth.

I have had brought to my notice a number of cases where the incisor and cuspid teeth have been acted upon by some erosive agent, in which the cutting edges were first involved, and the destructive process has gone on until the crowns had lost as much as one-third of their substance.

Again the grinding surfaces of the cuspids, bicuspid and molars, are found to be cupped out by loss of substance not due to mechanical abrasion in mastication, but to a process nearly, if not exactly, similar to that by which the labial and buccal surfaces suffer such a loss of their substance.

The characteristics of this disease are such, as to render it exceedingly difficult,—not to say utterly impossible,—for the dental pathologist, to determine with satisfactory certainty, its true etiology. Its very nature is such as to interpose the most serious obstacles to such investigations and conclusions, as would leave no room for doubt as to the subtle agent, or active forces employed to produce such a result. The

subject is indeed an occult one. I have no doubt but what abnormal secretions, both salivary and mucous, having a decided acid reaction, are important factors; also the various acids, such as Hydrochloric, Lactic, Acetic, Septic, and other acids generated and present more or less in all forms of indigestion arising from an abnormal condition of the gastric organs, exert their solvent power in cases of erosion of the teeth. Working in conjunction with these chemical agents, we have, I am sure in some instances, a mechanical agency in the abrading and polishing friction of tooth brushes and coarse gritty dentifrices.

But I do not believe that all these causes combined, are sufficient to produce such effects as are obvious in these cases, if there was not some radical organic defect in the structure of the hard tissues. Could we obtain a correct histological analysis of the teeth subject to this affection, I feel quite certain we would find the question as to its cause, easy of solution. The great difference that exists in the quality of the human teeth, in respect to their texture, hardness, vitality, sensibility and also their susceptibility to the action of corrosive agents, we all understand. This variation is not only manifest in the teeth of different individuals, but also in different teeth of the same individual. Not only so,—we also find a very marked difference in the structure of the calcareous tissue of the same tooth; some parts of the crown being hard and firm in texture, and other parts defective in form, chalky and radically imperfect. We have reason to believe that the normal development of the teeth, especially that process by which the carneous pulp, with its soft cellular tissue is transformed by the deposition of the lime salts into dentine and enamel, is liable to be seriously affected by systemic influences exerted through the circulation. If this be so, then a diseased condition of the system during the period of the formation of the teeth, disturbing the function of nutrition, altering the secretions vitiating the blood, and weakening the organic and vital forces, would enable us to account for most of the histological abnormalities to be found in the human teeth. In some cases of erosion I have met with, instead of a single groove, I have seen two, with a septum, or ridge of sound enamel separating them. This may be attributed to the defective enamel and dentine formed in different stages of its progressive calcification from the apices to the neck of the tooth; and the grooves represent two zones of the crown with defective and more soluble tissue than that which maintains its integrity between them.

I am of the opinion that in ordinary cases of erosion, that the teeth so affected, however dense and normal their appearance may be to the eye, are deficient in organic structure, either in the quantity, quality, or arrangement of their constituent elements, to an extent to render them more soluble by such acids as may be present in the oral cavity. The treatment indicated is filling with gold, (which I regard as most reliable in the majority of cases,) or with gutta percha or phosphate of

zinc. The use of a weak solution of bicarbonate of soda, or lime water as a gargle, two or three times a day, with the free use of pure precipitated chalk as a dentifrice, will be found of great value, as prophylactics.

W O M A N.

“What is woman? And what her characteristics and capabilities?” is the title of an oration delivered before the American Academy of Dental Science, Boston, Nov. 7, 1883, by Dr. Norman W. Kingsley, of 25 West Twenty-seventh Street, New York City. For a copy of this very readable essay, my thanks to the author, with the following as a little criticism upon it, of which I think it is well worthy.

The high encomium which the doctor pays to woman, is an assurance that he intends to do full justice to the subject of his essay. Before a prominent dental organization was this paper read, and by them published, and to this extent it carries the weight of authority, when speaking of woman and her relation to the dental profession. “Is there in dentistry a field for woman?” A pertinent question the author asks, and we will let him answer it. “The experiment has already been tried “to a limited extent. There are women now practicing dentistry, who “have gone through the curriculum of the dental colleges, passed the “ordeal for graduation quite as successfully as their male associates, and “set themselves up as independent practitioners; but the number is very “limited and I doubt not they could be counted upon the fingers. The “number is not large enough to prove woman’s fitness or adaptability to “the calling. Whatever success they may have attained may be ac- “counted for by the fact that exceptional women can always be found— “phenomenal, they might almost be called. For the present, I should “rather rank them with the exceptional few, who have become, in times “past, warriors, and led troops to victory; who possessed more masculine “qualities than feminine.”

“If my estimate of woman’s characteristics be correct, then there is “much in dentistry which is not within the scope of the average “woman. I have said that woman is not inventive. Many of the pro- “cesses in dentistry require that the inventive faculty should be largely “developed. Woman is inexact. A majority of the operations on the “natural teeth require mathematical precision, and to a very large ex- “tent, the same operations require an excessive mental and physical “strain, to which a woman is not physiologically equal. Like some “other entire employments, there are things in dentistry to which a “woman is manifestly not by nature adapted.”

The author then follows with a panegyric on woman as an assistant in the dental office, as he says, to do the thousand and one nice little and

polite things which take the valuable time of the dentist, but which success and good breeding require. He says: "*The ideal assistant, in a dental office, is a woman of education and refinement, of pleasing manners and address, interested in her vocation, viewing it with pride and not with humiliation, and devoted to the welfare of all she is called upon to serve.*"

And the doctor should have added, and willing to work for less wages per week than her employer receives per hour.

"Again, if women are ever to become, to any extent, independent practitioners of dentistry, it is far better that they be an evolution of the assistant, where they have been trained in the business of practice. The few who would then desire to take a college course would be more likely to succeed. While I would not stimulate a woman's aspiration, in this direction, I should not, under the circumstances, discourage her."

There is a field in dentistry for women. The experiment has been tried and has proven successful. The number now in lucrative practice far exceeds the number of fingers on the essayist's hands; indeed, he would have to count them over several times to embrace those of whom we have personal knowledge. It is large enough, with a record sufficiently favorable, to prove woman's fitness and adaptability to the calling. The school enjoying the largest dental class, numbers with its one hundred and forty (140) students, eight women; six of these are in the senior class, and will be eligible for examination for the degree of Doctor of Dental Surgery the coming March. The record of these women students in every department of dentistry during their two years of pupilage, I will not say has been equal to the average student, but equal to the best; that is, there are not six male students in the class who are their superiors. Indeed, so apt and faithful have they been to the clinical patients, who daily throng the infirmary, that it is a not infrequent inquiry from these applicants for professional services, as to whether they cannot be assigned to one of the ladies to have their teeth treated or filled, as the case may be. These students, having had, in common with other women, the mental, moral and physical training peculiar to their sex, are not exceptional. They have pursued their studies under the same teachers, in the same rooms, and during the same hours with the male students, and in every respect with results equally satisfactory, which is evidence sufficient that there is NOTHING in dentistry that is not within the scope of the "average woman" equally with the average man.

The inaccuracy of women, of which the author complains, is not in this school exhibited. If he could examine the pivot teeth mounted, the gold fillings inserted, the abscesses treated, and note the care and painstaking labor bestowed, and the exquisite mechanical adaption of means to ends, with the successful results, and with it all the interested energy and

bloom of health, the doctor would certainly think that the "things in dentistry to which a woman is not physiologically equal," and to which she is "manifestly, not by nature adapted," belonged to his poetic realms.

The thirty or forty women who have taken the dental degree from the four dental schools in this country which have opened their doors to them—and a score of whom are now enjoying a patronage of from three to six thousand dollars annually, have certainly proved their capacity to enter the dental profession without even having had their aspirations stimulated by the doctor, and without being evolved from his "ideal assistant." Why these women dentists, who are enjoying the delightful results of a successful practice, should, more than an equal number of men practitioners, be consigned to the unskilled and moderately compensated labor of wiping off instruments, keeping accounts, bowing out patients and malleting, the doctor will have to explain.

We are certainly in favor of, and fully recognize, the advantages to be derived from a thorough and protracted practical training, but experience emphatically teaches, that men are not less in need of this than women.

The doctor says "woman is not inventive." Well, the doctor being a well informed man ought to know, but then, in this, as in the number of women practicing dentistry, he may be mistaken. If he will take the trouble to procure a catalogue of the third annual exposition of the New England Manufacturers and Mechanics' Institute, opened September 5, 1883, in the city of Boston, Mass., he will see recorded therein, over fifty important inventions, the result of woman's brain. Nor are they confined to in-door work or household duties. Some are as follows: Oil ranges, improved chimney, improved ventilating screen for windows, birch bark life preserver, sad irons, rein holder for horses, cistern spout-trap, safety appliance for elevators, fire escape, a machine for wiring and binding hats and bonnets, and many other devices essential to hygiene, medicine and labor saving. Others of more remote origin and not less important, could be enumerated, but a word to the wise, etc.

C. N. P.

CHANGES IN THE GUM.

The importance of making a thorough examination of the gum, before taking an impression for a set of teeth, is a fact admitted by every dentist, for on this gum a set of teeth will rest, that is expected to do wonderful things. If that gum should change its shape in some particular part after the teeth are inserted, a failure to that extent is the result; to avoid this after trouble, as far human foresight is possible, is the necessity of this preliminary examination.

That these changes of shape do sometimes occur after the insertion of a new set, every operator knows, but what causes this change is a hidden mystery in most cases.

Some of these changes can be traced to the effect of a bad fitting previous set of teeth. An ill fitting plate presses on the gum at but few points, the pressure from mastication, indents the gum at these points, very considerably, and thus alters it from the normal condition. If the impression be taken at this time, the new plate would bear more evenly on the whole extent of the gum, thus relieving the indentations of some of the former pressure. The indented parts being relieved of some of this pressure, will gradually fill up and push the plate from the gum to some extent, causing it to fit loosely. To avoid this trouble, I have adopted the following plan: If, in the examination of the gum, the marks of the plate the patient is then wearing, can be plainly seen, the plan to be pursued, is to persuade the patient to disuse the teeth for a few days or a week, to give time for the gum to resume its normal fulness; an astringent mouth wash, used several times a day, will hasten the process. When the patient will not consent to the deprivation of the teeth for a few days, a different method will have to be followed. A description of a case I recently had, will show the method best. The patient was wearing an upper suction plate, made of rubber, which had been repaired several times. The gum was considerably indented by the edges of the plate, at three points, and somewhat inflamed by it. An impression of the gum was taken in plaster, a cast from which showed the indentions perfectly; these were filled up even with the margins, with plaster. The old set was then fitted to the cast, by filing the plate where it pressed too hard; the parts that did not touch the cast were filled up with gutta percha. The patient wore this remodeled set for ten days, before another impression was taken and a new set of teeth made, which she is now wearing with decided comfort. If the old set of teeth is of gold or silver, the work of remodeling is very much increased, but filling up the vacant places with celluloid, will make a very good substitute for the short time it is wanted.

If the patient can be persuaded to remain without an artificial set, for two or three weeks, and use a mouth wash several times a day, a marked improvement can be observed. An astringent wash of a much diluted Phenol Sodique, is the best for this purpose; the gums acquire a firmness and consistency that pays well for the little extra amount of time and trouble consumed in using it.

It is good practice, and adds to a professional man's reputation, to think well before beginning an important operation. A thorough examination frequently reveals defects in the gum, of softened membrane, or malformation, produced by faulty occlusion of a former artificial set. The information gained in this way is invaluable, and allows the operator time to form his plans in reference to the future set; it also impresses on the mind of his patient, the care and attention he is giving to the case.

If a case presenting itself for a new set of teeth, looks suspicious, I like to take an impression and examine the cast at my leisure, before I

give my opinion or do a stroke of work upon it. This is rather a difficult plan to pursue, for most of patients delay getting teeth, until the last thing before going a journey, or give a limited time, which is generally too short to do justice to the case.

It is much better to lose the case, than to have the patient coming back in a few weeks, with the complaint that the plate does not fit as tight as it did at first, or if a failure occurs, it will not do to charge it to the want of sufficient time, or the hurry of the patient, for the patient does not take this view of the matter at all, their verdict being, want of skill or judgment in the operator, whose reputation thus suffers for the want of a little prudent delay in the beginning.

W. R. HALL.

MAKING AND TAKING IMPRESSIONS.

BY J. LEHMAN EISENBREY, D. D. S.

[Synopsis of a Demonstrated Paper, read before the Alumni Association of the Philadelphia Dental College, February, 1883.]

I wish, particularly, to have the attention of the newly admitted members to our profession and those that are yet in the toils of surgery, anatomy and histology, and also in the mists and clouds of chemistry. A year hence it is to be hoped that you will have cleared the breakers, and will be resting on a smooth but ever moving tide of a dental sea.

Make *your* impression first, and then *take* one. The first, by your agreeable manner and your ability to impress your patients with the fact that what you *advise* is demanded in their case, and that you have the ability to carry it out. Let them see that you are in dead earnest. The second in WAX.

Both dentists and patients have, by collusion, decided to have nothing to do with lower partial sets of teeth,—Why? The dentist, from the difficulty in obtaining correct impressions, and making the teeth, whether it be one or more on each side; our patients, from an ill fitting plate, or lack of perseverance when they have a good fitting plate.

I make this assertion—without any idea of being contradicted—that the greatest need, dentally speaking, amongst our people to-day, is the need of lower molars and bi-cuspids, and this collusion is only increasing the trouble for future generations. What is the result? A wearing down; a spreading; a splitting off; an abscessing of the teeth; an absorption of the gums, and contraction of the cheek muscles with protrusion of the lower jaw.

I shall not discuss these points, but will leave you to soon find them out. I have *shod* and faced hundreds of teeth that I am convinced three or four artificial teeth would have saved. What is the remedy?—Wax:—it has never gone back on us, but has stood the test for generations. Let us love it and be congenial. Our great-great-grandfathers wore teeth successfully for years by its use. Plaster is first-class (and I believe

in it), but our patients won't have it. If they consent to try it once and it is a failure, that ends it in its application to lower partial cases,—they prefer to “gum it.” These emphatic objections were so common against plaster, that to gain any point and make the teeth, I went back to wax; using extra care and much patience. It may be said that I do not know how to use plaster. Well, after 18 years constant use of it, perhaps I don't.

The result is told in a few words,—success, and increased income; and hundreds of people much benefited. The plates, carrying from one molar up to five or more teeth, scattered around promiscuously on the lower jaw, some of them in daily use for fifteen years, and no call on the natural teeth to do *extra* work.

Method:—Fashion the cup to suit each case, letting the teeth come through; have your yellow impression wax quite soft, but not too much of it; place in position and press half way down; remove carefully, and with a hot knife blade quickly trim off surplus wax to within a quarter of an inch of the top of the ridge, outside and in. The wax has by this time become somewhat chilled; place it gently back and settle it down slightly, then, holding it firmly in position, press the wax carefully against the inside of the ridge and the teeth with the fore finger,—the outside wax will take care of itself; now give it a final settling down and hold for a couple of minutes before removing.

By trimming the material in this manner you have no surplus or overhanging wax to be drawn out of shape by the teeth or lips, and no one objects to having it placed back as many times as necessary, which must be done with great care or the wax will scale.

For overhanging teeth and dove-tailed spaces, use gutta percha, (pink sheets) warmed and placed around the teeth so as to make the spaces perpendicular, chill with cold water, then take the impression, remove the gutta percha and place in position in the impression. You do not need anything more reliable to work on than a cast from an impression so taken.

To assist the patient in not getting out of patience when first put in, would advise thin rubber or upper gold plate bands passed neatly around the most convenient teeth for stays, for a period of three or six months only. This is of great assistance to the wearer while the plate is making its nest, as it were, among the muscles and taking its position for future usefulness.

This is worth trying, and your patients can raise no possible objections to the process. After a little practice, you can make every case a success. Make your beginning now, and hunt up cases among the people who flock to this institution, or between your sessions.

I have seen upper teeth that were beautifully filled, and sound ones with the life ground out of them by the action of the lower incisors and bicuspid, for the want of artificial molars to counteract the immense force of the masseter and pterygoid muscles. Gentlemen, use *earnestness* in making impressions, and *wax* in taking lower ones.

THE USE OF BOROLYCEERIDE IN DENTISTRY.

BY CHARLES E. PIKE, D. D. S.

(Read before the Odontographic Society of Pennsylvania, February 6th, 1884.)

My attention was first called to this substance in May last, by reading an article from the pen of Dr. G. Granville Faught, in the *Medical News*. From certain statements made therein, it occurred to me that it might be of service in the hands of the dentist; and, with your permission, I will present the results of some limited experiments with it.

Boroglyceride is a combination of boracic acid and glycerine. It is a light amber colored, vitreous substance, without odor. The taste is warm and somewhat astringent. It is soluble in glycerine in all proportions, and by applying heat, to the extent of ten per cent., in water.

Both boracic acid and glycerine are non-irritating, soothing, detergent, and antiseptic; and their marked preservative powers have led to their extensive employment in most of the food-preserving compounds now in use. It would seem but reasonable to expect that the product of their combination should possess the same properties, and furnish us with a useful application in many of the pathological conditions we are called upon to correct.

In the article referred to, Dr. Faught says: "As a surgical dressing boroglyceride holds an important position, serving to allay inflammation and check excessive discharge and sloughing; it is a decided antiseptic, and acts as a deodorizer. Added to poultices (fifty per cent. solution), it serves to keep them moist and sweet for a long time; those who have had charge of a surgical ward during the summer months will know how desirable these points are. Using the fifty per cent. solution, conjoined with sponge-grafting, I have succeeded in healing several ulcers that had defied every other method of treatment."

He also recommends it as a vaginal application for leucorrhœa and sub-inflammatory conditions of the cervix, and says: "The results obtained by this method of treatment are surprising; in a large number of cases the discharge is stopped by one application." * * * *

"Dr. W. A. Jamieson reports very successful results from the treatment of diphtheritic sore-throat with boroglyceride. In the treatment of pharyngitis and tonsillitis, I have found it very satisfactory."

Dr. L. Webster Fox says: "As a dressing for wounds in ophthalmic surgery boroglyceride is valuable, acting as an astringent, antiseptic and deodorizer, thereby allaying inflammation, checking discharges, and keeping wounds sweet. In diseases of the ear, the drug was limited to the treatment of purulent discharges, both acute and chronic. The results obtained were very satisfactory, particularly so in odorous discharges, as the offensive smell was dispelled after three applications."

My experiments with this substance have been confined mainly to the use of the fifty per cent. solution in glycerine. I am not prepared to

say this is the most desirable form in which to use it, but, at some future time, I hope to be able to present more definite information regarding the use of this material, than it is possible to do now. I have used the fifty per cent. solution, simply because it was the preparation most employed by physicians who have recorded satisfactory results obtained by its use. It can hardly be doubted, however, that varying conditions can best be met by using the remedy in varying proportions.

In the chronic conditions of inflammation and suppuration accompanying "Riggs' disease," I have found its application of decided advantage. Of course, the primary step in the local treatment of this disease, no matter what the subsequent medication may be, is the thorough removal of all foreign matter from about the roots of the teeth and any rough or irritating portions of the alveolar borders. After this is done the careful introduction of the fifty per cent. solution of boroglyceride in glycerine, by means of a cotton-wrapped probe, has proved a most effective application. The probe should be delicate and flexible, and but a thin wrapping of cotton should be used; for, if the instrument is large, or clumsily armed with cotton, the medication cannot be carried to the bottom of the pockets without inflicting unnecessary pain or further wounding the tissues. Two or three applications will usually be sufficient to restore the gums to a firm and healthy condition. The patient experiences no inconvenience except the slightly pungent and astringent taste. I cannot speak, from personal experience, regarding its usefulness in a general inflammatory condition of the mucous membrane of the mouth, but from the testimony of others, and from its well marked antiphlogistic properties, I have no doubt it will prove of value.

In several cases I have succeeded in removing all odor from offensive canals in pulpless teeth without the use of any other agent, except first cleansing them with alcohol; and, what seems to me a consideration of no small importance, no other disagreeable odor was substituted for it.

There can be no better evidence of absolute purity and cleanliness than the *absence* of *all* odors—a condition of things it is difficult to obtain with most of the remedies found in dental offices.

When the canals were in a proper condition they have been filled with cotton saturated with a fifty per cent. glycerine solution, or a substance to which I will soon call your attention, and I have yet to see any unfavorable result from such treatment.

Where, from any cause, I have found it necessary to devitalize and remove a pulp, I have not, in the subsequent treatment, used either carbolic acid or creosote in a single instance, for the last six months. My practice has been, after removing the pulp as thoroughly as possible, to wash out the canals with alcohol by means of a delicate probe wrapped with cotton; this should be persisted in until the cotton comes away without the slightest stain; the canals are then dried and packed with cotton saturated with the fifty per cent. solution. If there be no peri-

cemental inflammation, or tendency to bleed from the wounded tissue at the apex of the root, I do not hesitate to fill the tooth at once.

Should inflammation exist about the root, as evidenced by diagnostic signs with which you are all familiar, I allow the same dressing to remain in the canal until the inflammation has subsided—usually finding that a “vigorous letting alone” is the best treatment in these cases.

When no further inflammatory symptoms present, the dressing is renewed, and the tooth filled.

Where alcohol does not readily check the bleeding, the canal is as carefully packed as for permanent filling, and sealed with gutta percha. At the next visit, upon removing the dressing, the stump will usually be found so far healed that no further bleeding will interfere with the completion of the operation; the canal is again carefully wiped out with alcohol, the permanent dressing introduced, and the cavity filled.

Another use to which I have put this preparation, and one which I believe promises most satisfactory results, is in capping exposed or nearly exposed pulps. For this purpose it is combined with another substance which is well borne by the tissues, and, in fact, has a soothing effect, viz., Litharge.

That animal tissue is, in a marked degree, tolerant of the presence of metallic lead, is abundantly proven by the numerous recorded instances of incysted bullets, embedded both in the hard and soft tissues. It was this peculiarity of the metal which caused thin sheet lead to be recommended as a capping for exposed pulps, and the pleasantly sedative effect of litharge (its oxide) is illustrated by the application of “lead plaster” to excoriated surfaces and slight wounds.

In capping a pulp, sufficient litharge is to be mixed with a drop or two of the fifty per cent. solution of boroglyceride in glycerine, to form a stiff, creamy paste; this is to be placed over the exposure, completely covering it. Without waiting for this to harden, sufficient phosphate-of-zinc cement is introduced to cover the capping and the floor of the cavity; it should be thin enough to be carried to place without pressure. When this has become sufficiently firm, the remainder of the cavity may be filled with the same material, in the ordinary way, until such time as is thought advisable to replace the external portion of it with a permanent filling.

Should the pulp be inflamed, I believe in most cases where it is possible to restore it to health, it can be done with boroglyceride. In fact, in very many cases where iodoform has been recommended, I think boroglyceride will give equally good results and save ourselves and patients the annoyance of its disgusting odor, which, it seems to me, cannot be removed to any great extent without also lessening its therapeutic value.

In this litharge cement we have three substances, each bland in its action when used alone, and, at least, non-irritating when combined.

Theoretically, it would seem to be a very desirable material for the purpose named; practically, I have found it to be so to the extent of my very limited experience with it.

Its antiseptic properties recommend it as a permanent filling for root canals, in the hands of those who prefer a solid material for this purpose. Being quite slow setting, there is no difficulty in thoroughly introducing it where any plastic substance can be carried. As there is no need to wait for it to set or harden when used in this way, the operation may be carried forward at once, with the certainty of its assuming this condition in the course of a short time.

From my experience, covering a period of several months, it seems to me that we have in boroglyceride a substance that may prove exceedingly useful in the hands of the dental practitioner. It is certainly worthy of your attention and investigation. Even should it prove of *no more* service than carbolic acid or creosote, its freedom from odor makes a forcible plea for its admission into the dental *materia medica*.

I am aware that shortness of time gives incompleteness to the results obtained with any new material in many of the operations about the teeth.

In calling your attention to this substance which certainly *promises* well, my desire is, that *together*, we may seek and find the truth.

TO THE EDITOR OF THE DENTAL PRACTITIONER.

DEAR SIR:

I have been very much interested in the article by Dr. Faught, on Light. Will you permit me to make a few suggestions to your readers which I have found of great value to myself.

I use a south light, because I believe that any one who is obliged to be in-doors all day should work in a room into which the sun can shine. It seems to me, therefore, that the operating room should have at least two windows. Through one of them the sun light should have unimpeded flow. The other I arrange in this manner:—outside of the window where the operating chair stands is a corrugated silvered reflector, three feet square; this takes the light from the south and reflects it into the room where it strikes another plain mirror of the same size, which is hung on pivots above the operating chair. From this second mirror the light is thrown directly down on to the patient. As the patient sits in the chair he cannot see the outside reflector because a green curtain is drawn up from the lower part of the window about two feet. To save the operator's eyes, another small green curtain is hung from the rear edge of the inside mirror, (the one above the operating chair;) This shuts off all light from the window which otherwise would strike the operator's eyes, but allows all the light to enter the patient's mouth.

To still further protect the dentist, the light from the second window into which the sunshine is always allowed to come, is prevented from reaching the chair by a screen about seven feet high which stands at the left of the chair. This screen is of a dark color, as are the carpets and walls of the room. The injury to the eyes does not come from the strong light before which most dentists work, but from trying to see into the mouth after looking at this strong light. The accommodation of the eye is strained and disease of the retina follows in time. Being obliged to use my eyes many hours each day, I have tried several ways of regulating the light, and find the one I have just described very good, particularly when it is supplemented on very dark afternoons, with a reflector like Beseler's stomatoscope, to which however, a blue glass ground and greased, should be added, for the light to shine through before it is reflected by the concave mirror.

Yours sincerely,

BOSTON, Jan. 29, 1884.

WILLIAM HERBERT ROLLINS.

EXTRACTION OF DECIDUOUS TEETH.

BY N. W. KINGSLEY, D. D. S., M. D. S., NEW YORK.

Whitney Memorial Prize Essay.

Quite recently there have appeared in the reports of papers and discussions before dental societies, opinions expressed upon the extraction of the deciduous teeth which are so much at variance with the author's experience and observations that he ventures to put his views in the form of an essay.

The views which he deems erroneous have shown a misconception of the order in which the temporary teeth are shed and their places supplied by permanent ones, and also in the idea which has been entertained that the premature removal of the deciduous teeth caused a shrinkage of the jaw, and created an irregularity in the permanent dental arch.

It would hardly seem possible, in view of the researches of the last quarter of a century, that any educated dentist could hold any other than one opinion, or that it should be necessary at this time to correct any erroneous impressions. Two or three illustrations will serve to show the errors alluded to.

A gentleman of well known eminence in the profession was describing before one of the societies his method of caring for children's teeth, when he said among other things, "that as soon as there was any evidence of the eruption of a permanent tooth he removed the deciduous tooth to give it room. Beginning with the central incisors, which were the first to make their appearance, if the removal of the centrals did not promise ample room for their successors then he also took out the lateral incisors. If when the lateral incisors emerged there appeared to be a

lack of room, he removed the temporary canine—following this, if the permanent canine when it appeared showed a want of space, he removed the first temporary molar, and in like manner, and in their turn, according to his plan, the second temporary molar was removed to make room for the first bicuspid, and finally, if there was not room in the dental arch for the second bicuspid he extracted it, and by this course of procedure he was always able to secure a perfectly regular dental arch in the second set, or permanent teeth."

This is the teaching of one who holds no mean place in the estimation of his fellow practitioners.

Another gentleman, occupying also a prominent place in dental societies, says that in his treatment of children's teeth, when the time arrives for the shedding of a temporary tooth he extracts it to give the permanent tooth a chance, regardless of any evidence that the permanent tooth is ready to erupt. He extracts when the period arrives for the permanent tooth to erupt, because he holds that its eruption is retarded by the continued presence of the temporary one. And again, another gentleman whose exalted attainments have been conceded for a generation, maintains that the premature extraction of the temporary teeth involves a contraction of the jaws. It is not an error in the use of terms that he makes (using the word jaws when he means alveolar processes), but he refers to a contraction of the jaw bones themselves.

These examples are sufficient to illustrate the object of this paper, for in the opinion of the writer each and all are erroneous.

Beginning with the last, it is a settled fact that the development of the jaw bones and alveolar processes are entirely independent operations of nature. There is a period in the history of the jaw when it is as much a jaw bone as at any subsequent time, and before a tooth has made any appearance. If through any freak of nature no tooth ever develops, the jaw will in no respect be aborted in its growth. It will continue to thicken and elongate in the case of the lower one, and widen and enlarge in the case of the upper, until it has reached the full measure of its inherited type, and neither the absence of teeth congenitally nor their removal after development will interfere with this function.

But in the growth of the alveoli as a process of the jaw we find an entirely different condition.

Alveoli are the result of the development of the teeth and coincident with their growth. The alveolar processes to a certain extent are constantly changing. It is quite doubtful if a single bony particle of the alveoli of adult life formed a part of the alveoli of childhood.

In a purely physiological condition it is forming and absorbing—forming again and again absorbing—and again a third time forming, only to be absorbed again when the final issue arrives of the loss of the teeth.

In a pathological condition this process of formation and absorption may go on repeatedly.

The mistaken idea of the shrinkage of the jaws must certainly be based upon changes which are apparent in alveolar processes, but which *do not involve the jaw*.

That the premature extraction of the deciduous teeth involves a contraction of the jaws is a mistake, and to a limited extent it is a misconception that such extraction will involve such contraction of the alveolar arch as will induce irregularity, either in the period or order of eruption, or the arrangement of the permanent set. This is true as applied to sixteen out of twenty teeth that make up the complement of the deciduous set.

The order of shedding and of eruption shows that the first to change places are the central incisors; secondly, the lateral incisors; thirdly, *not* the canines, but, frequently the second molar for the second bicuspid; fourthly, the remaining molar for the other bicuspid, and lastly the canines.

In a normal condition the jaw bones *continue* their growth *after* the growth of process about the temporary teeth has ceased, and thus as the period approaches for the eruption of the permanent teeth we find spaces between the temporary ones, thus enlarging the alveolar arch for the accommodation of the larger members of the permanent group.

The growth or enlargement of that part of the jaw upon which the deciduous dental arch is situated seems to have obtained its complete development at the period of shedding, and the incisors and bicuspid will find room equal to their necessities.

The premature extraction of any or all even of these eight named teeth, will not interfere with the natural and expected enlargement of the jaw, but the premature extraction of the canine teeth will be likely to lead to most serious results.

After the jaw bone has ceased its enlargement there seems an almost universal tendency for the bicuspid and molars to crowd to the anterior part of the mouth, and to fill any space in the alveolar arch that may not already be occupied. This is not only true in the formative period, but is equally true in adult life, if the occlusion of the opposing jaw does not counteract it. The consequence of this inevitable tendency is, that unless the temporary canines remain in their places until their permanent successors are ready to emerge, the bicuspid and whatever molars are behind them will crowd forward and occupy the space which belongs to the canines.

We thus see that whatever may be the inducement to remove any or all of the deciduous teeth prior to their period of shedding, the canines should be retained until there is ample evidence of the early emergence of their permanent successors, unless the health and comfort of the child would be sacrificed in so doing. But it would be far better to remove one or all of the deciduous teeth and take the risks of irregularity in the

permanent ones, than to submit the child to constant suffering and consequent injury to its health by their retention.

In a case of retarded dentition the writer takes issue with the practitioner who removes the deciduous teeth when the usual period arrives for shedding, regardless of any evidence that the permanent ones are ready to erupt. *His* reason is, that the retention of the temporary tooth retards the growth of the permanent one.

In this issue is involved the function of absorption, and his practice would indicate that the non-absorption of the temporary tooth was the primal cause of the retarded dentition, rather than that retarded dentition is the cause of the non-absorption. Cause and effect are in his mind evidently transposed.

Such a practice will unquestionably lead in many cases to serious results.

It is not always certain, when there is no outward indication, that a tooth lies concealed.

It is not a very uncommon thing to see some one tooth of the permanent set missing, and to learn that it never erupted. And again, a retarded dentition generally indicates teeth of better organization and less liable to decay than those which have developed at an earlier age.

So long as deciduous teeth remain in the jaw in a firm and undecayed condition, with no evidence of a misdirection of their permanent successors, it is not advisable to remove them.—*Transactions, Dental Society of the State of New York.*

CHLORIDE OF ZINC.

The Professor of Special Surgery, to whose lectures we listened in college days, had less faith in the virtues of medicines than most men. He was accustomed to say in his peculiar, drawling, but sententious manner: "Gentlemen, when you enter upon practice don't multiply remedies. If a cure of disease was ever wrought directly by medicine, it was probably done by iodide of potassium in a case of syphilis. If I were to order a new medicine case, I should, I think, have it in five bottles. In the first I would place—morphia; in the second—atropia; in the third—iodide of potassium; in the fourth—well, I think I would put in a little more iodide of potassium; in the fifth—gentlemen, I have made the case too large. I don't know what I could put in the fifth bottle."

For most of the cases that fall under the care of the average dentist, we are strongly inclined to give to chloride of zinc the same prominence that the old Professor gave to iodide of potassium. Its action is so beneficent, though at times somewhat severe, that we would advise the young practitioner to put into the empty bottle "a little more chloride of zinc."

It is prepared by dissolving zinc, or its oxide of carbonate, in hydrochloric acid, and then filtering the solution, and evaporating it to dryness. It is a grayish-white, semi-transparent, and gelatinous substance, but if fully dried becomes solid and pulverizable. It deliquesces on exposure to the air, is soluble in water, alcohol, and ether, and unites with both albumen and gelatine. It has an acid and metallic taste (Stille). It is a corrosive agent, but differs from most such by its absence of mischievous effects. It is not readily absorbed, and if it be, it will do no injury. As a topical application it is astringent, it is a deodorizer and a disinfectant, but its principal virtue is its astonishing power in promoting healthy granulations in stagnating tissues. In all cases of chronic inflammation of the gums, in pyorrhea alveolaris, and as a dressing for indolent wounds after surgical operations, we have found it extremely useful. As a topical application about the gingival margins after the removal of tartar, it is invaluable. In the deep pockets beneath the gum, caused by calcareous or other deposits, that are not of a catarrhal character, we have found nothing to quite take its place.

In the condition now commonly denominated pyorrhea alveolaris, when there is denudation and separation of the gum from the teeth, an absorption or destruction of the alveolar border so that a probe can be thrust for a greater or less distance under the gum, with a constant discharge of pus, we have not infrequently brought about a cure by the use of chloride of zinc alone. It is better, however, to give surgical assistance first, by scraping the edges of the process, and this may profitably be followed by the use of thorough antiseptics until the discharge is stopped. At this point, if all foreign accumulations be removed from the tooth, there is no dressing that has yielded better results for the after treatment than chloride of zinc. The gum about the cervical portion of the tooth in such cases is almost invariably turgid and swollen, so that to the casual observer, there would seem to be no apparent denudation; but when the inflammation has subsided it will be found that the tissue shrinks away sufficiently to expose a considerable portion of the root. If this tumefied tissue be too thoroughly cauterized, there will be an entire destruction of that which under more judicious treatment might possibly be retained and restored to normal function. The principal aim of the dentist in such cases, should be to retain as much of a "pocket" as possible, for without something of this kind there can be no restoration of that which has been lost. When the breaking down of tissue has ceased, and diseased action has reached a limit, the process of repair should at once commence, but this cannot be secured without something to stand as a protector for the protoplasmic matter which may be deposited. New granulations cannot be added unless they are secured from foreign interference. Hence the necessity for the preservation of the sheltering gum.

Chloride of zinc in dilution, is sufficiently escharotic to cauterize the inflamed surfaces without destroying them. It is such a powerful stimulant that, if all irritating causes be removed, new granulations almost invariably succeed its employment.

In pyorrhea alveolaris, after the removal of all deposits, the edges of the diseased alveolus may be thoroughly saturated with aromatic sulphuric acid, which will not attack the soft tissues, and the case allowed to rest for a few days. If then the discharge has ceased, the treatment with chloride of zinc may be commenced. If there still remains any trace of discharge, it is an indication that some of the diseased parts have not been reached, and a thorough exploration should again be made for deposits and diseased bone, and the sulphuric acid once more be resorted to. But if there be no longer any discharge, a solution of chloride of zinc, of perhaps ten grains to the ounce of water, may be injected beneath the gums, and this repeated two or three times a week, until a cure has been effected. A little experience will soon teach one the proper strength of the solution to be used. Some cases demand more severe treatment than others. A special syringe should be kept for the use of this remedy, and that the point may not become obstructed, it may be allowed to remain point downward in a glass partly filled with water.

Chloride of zinc is very useful in catarrhal conditions of the maxillary sinus, or antrum of Highmore. It will be necessary, however, to use care in its employment, and to inject it considerably dilute, as intense pain follows the use of a solution too concentrated. One of the most obstinate cases of ulceration of the mucous membrane of this sinus which ever come under our care, yielded to a solution of about twenty grains to the ounce, after almost everything else had failed, but the patient will not soon forget its application. One dose was enough for both him and the disease.

Chloride of zinc is also one of the best obtundents of sensitive dentine that we possess, although its first application is liable to be irritating. A drop of the deliquescent fluid is placed in the cavity, which has previously been thoroughly dried, and allowed to remain for four or five minutes. When the obtunded layer of dentine shall have been removed, a fresh application will be necessary.—*Editorial in "Independent Practitioner."*

Patients are often much annoyed by neuralgia after roots of dead teeth have been stopped or treated. This may often be relieved or arrested by :

R. Tincture Aconite, drops 5 ; Tincture Gelseminam, drops 10 ; Aqua ounces 4.

Sig.—Teaspoonful every hour.—*Ohio State Journal Dental Science.*

THE FOLLY OF EXTRACTING TEETH.

BY HYMAN ROSA, M. D. S.

(Read before the Third District Dental Society, New York.)

MR. PRESIDENT AND BRETHREN:

The subject I have chosen for a few remarks is one that should appeal most emphatically to the minds and consciences of *all* honorable people, but particularly to the assembled genius and excellence before me; and, though I may seemingly have chosen a "hobby," I hope to prove a competent rider, or be thrown completely.

History informs us that in the year 300 B. C., Eristratus deposited in the temple of the Delphian Apollo a leaden odontologue, which we should call a tooth-drawer (forceps) "to prove that only those teeth ought to be removed which are loose or relaxed, and for which a leaden instrument will suffice," which in itself, even before the infancy of dentistry, was an argument against the wholesale destruction of nature's most priceless organs.

This was probably the only kind of instrument employed in the extraction of teeth until the invention of Garengéot in the early part of the eighteenth century. As the world grew wiser and greater, the need of a more available instrument for removing teeth became manifest, and the key of Garengéot displaced the rude and imperfect forceps, and no doubt the extracting of teeth began in earnest. For about fifty years the fun continued, and there was not found a country doctor, a city barber, or a traveling dentist, whose saddle bags did not contain the slaughtering turnkey of Garengéot.

The writer well remembers the experience of a Christmas day, twenty years ago, when almost distracted with toothache, he applied to the country doctor for relief. He must needs first go to the barn where he kept his turnkey; then after whetting his jack-knife on his boot-leg, he lanced the gum. A silk pocket handkerchief of goodly dimensions was wrapped around the lever and the murderous key applied to my refractory molar. A dextrous twist of the wrist, and one side lifted—it seemed like one-half of my youthful cranium—then, leisurely removing the key, and changing the hook to fit the other side, he made a final effort and dislodged the tooth, all for twenty-five cents, and no questions asked.

My brethren, think you there would be as many teeth extracted at the present day, if our patients were obliged to become the victims of a like experience?

Until about the year 1830, this was the prevailing mode of extracting *molar teeth*, as the forceps of those days were so rude and awkward as to render their use on any but the anterior teeth very uncertain and even dangerous.

At the present day, however, there is such a diversity of forms, and such perfect adaptation to the requirements of each individual case,

that the extracting of teeth has unfortunately become a household word and, when done in connection with nitrous oxide gas, "a glorious revelation!"

When we consider the ravages made by the neglect and untimely sacrifice of the teeth of our American people—a nation leading the world in culture and civilization, a nation of dentists and dental colleges—it is surprising that so little has been written or spoken upon this subject to educate them to a higher degree of appreciation of the usefulness and beauty of the natural teeth over the artificial; to cultivate a habit of careful and thorough watchfulness; to create in the minds of children a spirit of pride and jealousy which shall prompt them to neglect or sacrifice their teeth no sooner than they would their fingers or their eyes; to have the extraction of teeth the exception rather than the rule, and to brand every dentist and dental association who are concerned in the wholesale destruction of the natural teeth as maliciously mercenary, and subject them to the contempt and disgust of all right-minded individuals.

It is estimated that 20,000,000 teeth are extracted and 3,000,000 artificial sets constructed annually,—what an unnecessary sacrifice, when we consider the vast number which are never replaced and the poor substitutes that are made. The time has been when the surgeon thought he was the best who cut off most fingers and toes, arms and legs, and penetrated nearest to the vital parts of the human frame with merciless cold steel. That day is now past, and the best educated surgeon is he who saves a limb, and restores to usefulness without mutilation. Has not the time come for us to show a parallel improvement in dental surgery? It does not seem quite the thing for men, who have received the liberal education now demanded of dentists, to take their orders from their patients, who are not wise about their denture anyhow, and whose little stock of common sense is apt to take wings before the pangs of an exposed nerve. No physician would be dictated to by a patient as to whether a finger should be lanced to the bone, and poulticed for a felon, or cut off at the first joint, and so make a speedy end to the throbbing agony peculiar to that species of inflammation.

And, brethren, it seems to me that the dentist should decide for the patient who has been kept awake all night with a demon of a molar, whether the torture should be ended with a forceps, or whether a more mild and conservative treatment, even though extending the period of pain, should be entered upon. It is true, that as the physician finds people who always want to be purged, as Hercules purged the Augean stables by turning the course of the river full into them, and never think they get full value for their money unless the testimony of their bowels is full and copious, so we find patients who would apparently enjoy the dentist's chair much better if each tooth drawn had its roots hooked, or were riveted by exostosis, so that the history of the operation might

be handed down as an example of fortitude worthy the emulation of generations yet unborn. It was some such soul as this who despised the dentist that charged him fifty cents for popping a tooth out "*just as easy*," and lauded the blacksmith, who only charged him a shilling, for dragging him all around the shop. It is hard to explain to such minds the value of conserving the teeth. It would probably be of no use to tell him that his natural teeth would masticate his food much better, and save him from the fangs of that internal wolf, called dyspepsia. Perhaps such people are born into the world to suffer, and only by suffering can ideas penetrate their brains. But is there not another class, a much larger class than we have imagined—a class that we must search for to find out, who may be wrought upon, by a proper presentation of the case, to spare themselves and their teeth?

Where there is not personal vanity to work upon in the patient, there should be some common sense to appeal to, and the dentist, however skillful he may be in mechanical dentistry, should yet pride himself more in his skill in appealing to the owner to spare the innocents, whose place he can fill with lifeless porcelain so as to deceive the eye of the most observing. Would that I were a poet, to write, not "Woodman, spare that tree," but "Dentist, spare that tooth."

If it be asked whether the author of this essay is inclined to run down mechanical dentistry, or to do away with it, I must answer that there must always be a plenitude of cases where mechanical dentistry, and it alone, will fill the bill. But the danger at the present time is, that skill in doctoring sensitive teeth, in preparing cavities, in filling teeth, will be lost altogether. The gas-bag, forceps, and the vulcanizer are ready oftenest in the hands of the general practitioner. We are becoming a class of mechanics rather than a profession.

It is in this vein of thought that I have prepared these words for your thoughts to-day. Let us then, brethren of the Third District Dental Society, awake to a renewed appreciation of our duties as dentists. Let us be more steadfast in the conservative department of our specialty, and by precept and example fearlessly do our best to promote such a healthy reaction in the minds of our patients that "pulling teeth" will be a by-word and a reproach among all thoughtful and intelligent individuals.—*New England Journal of Dentistry*.

ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

At the last stated meeting of this society, it was decided to change the time and place of meeting. In future, until further notice, the Society will meet on the *third Tuesday* of each month, at the Hall of the College of Physicians and Surgeons, cor. Thirteenth and Locust Streets, Philadelphia.

EDITORIAL.**PENNSYLVANIA COLLEGE OF DENTAL SURGERY.**

The Twenty-eighth Annual Commencement, will be held on Thursday evening, February 28th, at 7.30 o'clock, in the American Academy of Music, Philadelphia.

PHILADELPHIA DENTAL COLLEGE.

The Twenty-first Annual Commencement, will take place at the American Academy of Music, Philada., on Friday evening, February 29th, at 8 o'clock.

ALUMNI ASSOCIATION, PHILADELPHIA DENTAL COLLEGE.

The Twenty-first Annual Meeting of the Alumni Association of the Philadelphia Dental College, will be held February 28th, at 11 o'clock, A. M., in the College building, 108 North Tenth Street, Philadelphia.

Papers will be read, and business of importance transacted.

By order of

L. ASHLEY FAUGHT, President.

CAULK'S DENTAL ANNUAL.

1883-84

EDITED AND PUBLISHED BY L. D. CAULK, D. D. S., CAMDEN, DEL.

A pamphlet of thirty-five pages containing many valuable statistics, interesting and useful to the dentist, which could not otherwise be obtained without much trouble and delay. Any dentist will find it a most convenient reference. The author deserves much credit for its compilation and publication.

TO CLEAN IMPRESSION CUPS.

In the *Dental Cosmos*, for November, 1883, A. Morsman, has placed the profession under obligations to himself by describing a very efficacious method of cleaning impression cups. He says:—These articles are usually the dirtiest-looking appliances about the office. They can be made presentable as follows: Remove all particles of wax by dipping in boiling water and wiping with paper or old cloth; then rub them with hydrargyrum cum creta (mercury with chalk) found at any drug store, and use dry or nearly so. The chalk removes all adherent particles, and the mercury is deposited upon the cup. Lay them aside a few minutes until the shiny look of the mercury has disappeared; then rub them with the brush-wheel on the lathe, when they will very speedily take and retain a polish. It is done very quickly, and they look bright and clean when finished. From personal observation we can heartily recommend a trial of the above plan. It will make old and unsightly cups look almost as good as new, and with very little labor.

THE QUERIST.

Will any of the readers of your Journal kindly instruct a brother who lives at an inconvenient distance from dental depots, how to mend a broken engine-cable? I have one now that is broken about eight inches from hand-piece. I have been told they could be mended;—but how?

A. BORE.

Will some one who has had *experience*, tell me what he considers the best time, and the best way, to present bills for services rendered?

BEGINNER.

DENTAL PRACTITIONER, Philadelphia.

In the January number, G. S., Iowa, asks, "Can you tell me any quick and effective way of cleaning dental-engine burs when they become clogged."

I have a method which, so far as I know, is original with me as applied to engine burs. I use a very small glass jar or bottle, like the powder jar with Houghton's Os-artificial. I place enough Sulphuric acid therein to cover the *burs* I want to clean, and then stand them in, burs down; the jar will hold about one dozen. This not only cleans them, but it leaves them almost as *sharp* and good as new burs. The burs must be watched so as not to be kept in too long. I have used Aromatic Sulphuric acid, leaving the burs in over night, with good result. Let G. S., try this plan.

J. R. MORGAN.

I would suggest to "G. S." in January No. of Practitioner, that he use, for the clogging of his engine burs, a tooth brush, with a little water and Pumice Stone, which he will find is the quickest and the cleanest way.

G. W. E., Washington, D. C.

Reply to G. S.—A quick and effective way of cleaning dental-engine burs when they become clogged, is to scratch them as they rotate in the engine, with a brush made by tacking a strip of wire carding (used for cotton) to a wooden handle.

JAGO.

In reply to "G. S.," Iowa, in reference to cleaning Dental Engine Burs,—buy one of the S. S. W. Engine Bur Cleaners. I have used one for over two years.

A. D. P., Chester, Ill.

THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

VOL. 2.

PHILADELPHIA, MARCH 15, 1884.

No. 3.

NICOTISM.

The distinction made between the mind of man and animal instinct, is the supposed inherent disposition and power the former possesses for reasonable deduction in aid for mutual expression and self-preservation. But, if we generalize the facts derived from exemplified enactments of the human race, in comparison with those of the lower orders of animality, we cannot fail to discover in the inferior species, from the lowest grade upward, evidences of sagacity in adaptation to the requirements of each, that fulfill natural intention, designed for the selection of proper food, with more discretion in avoiding deleterious temptation, than mankind have shown with all their research and experience. Still, although the reasoning powers of man may be rated as an available distinction in fact, yet the unthinking perversity of his cultivated appetites, as exhibited by the masses, must be held, in truth, as far below the natural sagacity of the lower orders as a ward for resisting the formation of deleterious habits. The instinctive taste of the animal, from the lowest type, selects with unerring certainty the food required for natural assimilation, and when it can be obtained, eats it with a gusto, proof to all the allurements of man's artificial preparations. But humanity is constantly seeking new combinations for the cultivation of abnormal taste, at the expense, not only of vitality, but of all its elementary constituents that tend to produce real, relishable gratification. The assimilative organs telegraph through the nerves their responses to the palate and glands of the mouth, when the external senses reflect their impressions of edible matter, which, naturally, serves to excite and appease hunger and thirst; and the stomach's ejective throes signal through the eighth pair of nerves its disgust whenever the mouth receives anything objectionable to nutrition.

Still, in defiance of all the functional premonitions excited from congenial taste or revolting distaste, established for organic communication and mutual preservation, man not only perverts the natural indications of appetite, but insults its purity by subjecting the mouth and

adjuncts to receive and prepare substances which corrupt and destroy the unity of the structural system from vital degeneration.

Of all the deleterious habits to which man has subjected himself, the use of tobacco is the worst, and the sway it holds over the vitiated taste of humanity is unaccountable, when we take into consideration its known poisonous qualities and disgusting taste, which never fails to produce a deathly nausea in the stomach of the novice, that should warn him of its baleful effect. But with the knowledge that the plant is shunned by every living thing, with the exception of the loathsome tobacco worm, mountain goat and monkey, whose curious taste was implanted in Eve, and became the heirloom of man, the children of the race will still persist in its habitual use, and, without doubt, will still continue to vindicate their self-destructive rights of pedigree for entailed deformity, suffering and a miserable death, to the end. But that they may be able to measure and rate their own temerity from individual mouth experience and consequent organic disability and excruciating pains, a demonstration from the close observation of its effects through a long series of years, with the promptings they may derive from the cigar and tobacco quid, will afford the means.

As San Francisco affords the opportunity of demonstrating the effect of smoking and chewing tobacco upon children, commencing at five years of age, subject to its hereditary impression, we can obtain conclusive evidence of its local, general and transmissible effects. Out of 2500 children examined, who suffered from contracted jaws, and consequent obstructed and irregular second dentition, 950 were of German parentage, whose ancestors were inveterate smokers; 830 Irish, with the same ancestral record; 215 Russians, Slavonians, Hungarians and Italians; 412 American, English, Scotch and French; 93 of Spanish, free from and mixed with Indian blood. There were, of course, alcoholic combinations and other causes that contributed in a greater or less degree to the chief source of hereditary degeneration of the osseous system, but the preponderating influence plainly indicated that tobacco was the poison that corrupted the fountain of vitality, and impaired the purity of its impression for transmission.

From the history of the cases investigated, there were two influences that modified, in a remarkable degree, the power of hereditary impression. The first was the nearness in scionery to aboriginal source, or in degree from the effect of intermarriage, as with the Spanish and native Indians of America, whose broad and expansive jaws still admit of contraction without impairing the regularity of the teeth.

On the contrary, there is a marked improvement in the line of beauty, from the reduction of the prominent jaws in the descendants, so that they conform in symmetry with the upper portions of the face. The carnivorous human, as with the lion and bull dog, cultivate jaw expansion from the force required in the mastication of their food, and frontal

prominence from the habit of gnawing meat from bones, as well as nose-flattening, with breadth of nostril, from constant compression in the process.

The second modification that serves to abate hereditary contraction of the jaws, and retard the local injurious effect of tobacco upon the teeth, is the constant ruminating of the cud after the strength of the quid has been expressed by chewing. This rotary and extensory movement in this process gives the impression of expansion, as the constant indrawing of smoking does of contraction, while the mobile integument, from habitual adaptation to the routine muscular action, retains the expression, and conveys it as a satirical shadow that neutralizes or renders comical the facial accompaniments which serve to characterize variations in conversation. That the physical and mental abilities, as well as disabilities, of the father are reproduced by impression upon the maternal matrix, as heir-looms for good or evil, is abundantly verified by incontestable fact, although the process is veiled, as with many other transmissible laws of nature.

Indeed, upon this regenerative power, for improved reproduction, depends the existence of a race, and its influence for success in emulation for national supremacy. As with the self-infliction of contagious disease for sensual gratification of an appetite that braves pollution, and with as little hesitation, when realized, imparts its foul germ to maternal purity for reproduction and perpetuation, as an irremediable curse of misery, the tobacco consumer as surely imparts the germ of degeneration to his successors, and, in degree, is no less culpable. The topical effect of tobacco upon the mouth and adjuncts, demonstrates clearly its poisonous influence upon the general system, and reason why its impression is not more direct and destructive, which will be made apparent in tracing its progress from initial taint. In the children who commenced smoking at the age of five, the flow of saliva from the glands of the mouth was almost constant, showing great excitement of the secreting tissue and relaxation of the sphincter ducts, even after several hours' abstinence from the irritating cause. Notwithstanding this inordinate waste and spitting ejection of the saliva, accompanied with nausea, the absorption of the poison was sufficient to produce general functional lethargy, which nearly suspended the cumulative powers of nutrition for the growing increase of the tissues, necessary for their stage development from childhood to puberty. This tissue retardation in growth was especially indicated in the bony structure of the jaws, which retained, with scarcely perceptible increase in size or form, their infantile shape and lack of density. The result produced in the seventeen smoking children, who continued the habit from the age of five to puberty, was contracted jaws, slow and imperfect second dentition, with great irregularity and lack of uniformity in the structural composition of the teeth. The lining membrane of the mouth and passages appeared narcotized and deprived of natural

color and vitality, while externally the muscles of the face, corresponding in action with those of the mouth, seemed to be held under forced constraint, acting separately and with uncertain movement, which gave an anxious and semi-paralytic emotional expression to the face. Those acquainted with the process of bone formation, and variations in structural composition, and time for the full completion of the osseous deposit, can readily realize the effect of the powerful poison upon the assimilative organs of nutrition; and in young children suffering from the hereditary taint of narcotism, the impression that would be made by the indrawing retraction of the muscles of the mouth in pressure against the semi-cartilaginous tissue of ossification. Especially, when we consider the impervious nature of the smoking material which taxes the puffing energy of the incipient Turk.

In the ten who both chewed and smoked, the general symptoms of narcotism were aggravated, but the local influence upon the appendages of the mouth was favorably modified by the natural exercise of the jaws; but at maturity all were sadly dwarfed, both in physical and mental development. In the mouths of the Hispano-Americans, the pyroligno-carbon that is consolidated with nicotine around the inner and outer face of the neck of the tooth, at the junction of the gum, from the paper of the cigarettes they smoke, in some way neutralizes the erosive effect of the poison, so that the semi-cartilaginous band of attachment retains its hold upon the neck of the tooth for a much longer period than with the pipe and cigar smokers. But eventually, with each, the alveolus is destroyed, and the teeth freed from their sockets to the apex of the roots, leave but a flat jaw surface for the adjustment artificial, to supply the place of the self-martyred natives, to the manor born.

Although argument and expostulation is thwarted with the reply, "Father, the priest, and parson, etc., smokes and chews," the dentist who fails to warn his patients of the deleterious effect of tobacco, accomplishes but a small portion of his duty, for the universality of dental authority could not be gainsaid. This slight glance at the noxious effect of the tobacco habit, will, I hope, receive the active sanction of the dental profession.

ELTON R. SMILIE, M.D., San Francisco, Cal.

We have still on hand a few complete sets of Vol. I. Anyone wishing to obtain them can do so by remitting the subscription price, 50 cents.

There is no period in a fond mother's life when she is happier than immediately after the baby has successfully cut his 1st 2th.—*Sanitarian*.

AN ADDRESS,

To the members of the Alumni Association of the Philadelphia Dental College, delivered at their twenty-first Annual meeting, February 28th, 1884, by the President, L. Ashley Faught, D.D.S.

GENTLEMEN :—The completion of another circle of time has brought to our Alma Mater her twenty-first commencement season ; and to us, her children, the accompanying festive occasion of rejoicing.

The ranks to-day are not as they were a year ago,—one has been mustered out, not a few enlisted. Before me are some who have been in commission for twenty years ; many, who have seen active service for shorter periods ; and those who are the young recruits of to-day. All have met together at this hour as the Alumni of an honored institution. In this hall, where each, in turn, has listened with student's eagerness to words of knowledge and of truth ; where the heights of science have been scaled, and the depths of mystery penetrated, we are gathered to pay our tribute of thanks.

“That the fountains here opened, still gush by the way,
And the world for their healing is better to-day.”

and to renew to the good school—giving out year by year living epistles, the proof of its work—our vows to remember its honor and to guard its renown.

It has fallen to my lot, as your president, to express these feelings in language for you.

In the discharge of this duty, it is not simply for me to make such important declarations as the volume of affection bestowed by all, saying that our hearts to-day beat as one ; but a requirement that I should, in addition, freshen in our minds that upon which the fulfillment of such pledges depends.

Permit me, then, to suggest that the whole of anything is composed of units ; that assemblies are made up of individuals ; and that the desire of the mass must, to be realized, be made the aim of the individual ; for success or failure here, if in the majority, surely determines a like result for that body of which one is a component part.

If, then, there is placed in each heart the virtuous and praiseworthy desire to contemplate in professional life only those things which are true, honest, just, pure, lovely and of good report, the water which flows from such fountains will be of the clearest crystal. Honor, reputation, respect, and all that is the merited reward of true manliness, will be paid with deference by those having cause to drink ; and the mother of such offspring shall be blessed. On the contrary, if evil, baseness and wrong flow forth in our lives, then surely shall we be shunned, and she truly become a discredit and a reproach.

What is here presented to our consciousness, and what I desire to press home to conviction upon our minds is, that the advancement of

any institution of learning is dependent largely upon the personal advancement of those who constitute its alumni; and that each alumnus, who would see his Alma Mater advance, must for her sake study self-advancement. Progression in the whole demands progression in the units. If every graduate, in the past, of the Philadelphia Dental College had become famous and the highest type of a practitioner, it would require no argument or sophistry to prove her supremacy; or that it is the thing for any one entering dentistry, to become a graduate from her; for this fact would, in itself, argue fame and success.

If this picture delights our eyes, if such is the reputation and respect we wish for our diploma, let us lose not sight, for a single moment, of the fact that the halo we desire to have reflected upon us by it must be first earned in our individual labors.

That individual laborers in the same departments of life's many activities, never attain exactly the same apparent pinnacle of success, is explicable only in a comprehension that the difference is produced by the variety existing in the innate characteristics of individuals. These characteristics find expression, and in the professional man do more to make what is termed success or failure, than does that which is strictly professional. While I desire never to be understood as underrating the value of each man having an extended and correct knowledge of the art which he proposes to practice, I hazard nothing in saying, that the *personnel* exerts a greater influence on the end attained, than does this knowledge. Again, it is clear that what is success for one, is not success for another. External circumstances have much to do in determining what constitutes this important matter.

Self-advancement is thus found to be largely based upon a knowledge of ourselves, and of the existing state of the things with which we have to do. Knowledge of these is indeed power.

Ponder well upon this doctrine, in all its latitude of meaning, and mourn not because your life is not in all its externals as the life of your envied neighbor. See to it, on the contrary, that in the one essential point it differs not—that looked at by itself, it is a consummate success.

Those that consult us for services, always consider that we are professionally the peer of all others from among whom they make their choice; and the community at large accept this verdict, or at least, one of equality, unless facts prove to the contrary.

Should we, therefore, be not so unfortunate as to destroy this position by a gross exhibition of professional lack, it is apparent that any elevation is to be gained entirely through avenues of personal qualities. As these are not native only, but also acquired, it is apropos, and a great temptation to speak in this connection of them, and of their modes of action. The study is thus, indeed, an illimitable one; but it is more germane to the hour to narrow this universality, for any reflecting mind will have but little trouble to cull from the experience of the

world, and present separately, the thousand and one gems in character upon which great heroes have risen

“To those turrets, where the eye
Sees the world as one vast plain,
And one boundless reach of sky.”

More important is it that we should contemplate here the points around which these gems invariably crystallize, and from which they spring.

The old couplet rises from memory,

“Two principles in human nature reign;
Self-love, to urge, and reason, to restrain.”

and in it we find enfolded the root upon which grow bud, flower, and fruit, the distinguishing characteristics of those who have, or would carve themselves into prominence.

Self-love never has been, nor never can be self-love alone. It is bound to widen into social love, finding the private in the public good; and between that benefit which is present, and that which is future, reason broadened by cultivation, attention, habit, and experience, distinguishes, always sacrificing the former for the latter.

It is, therefore, for us but to give free play to these principles to secure the highest future public good for the community in which we live, and by so doing to raise ourselves, head and shoulders, above our contemporaries.

It is impossible for me to conceive of any higher purpose in life than that which is here so clearly defined:—the concentrated consecration of all that is good in us to bless our fellow man; and the energetic suppression of all that is evil in our nature, that it may not work him harm.

LIFE, MOTION, AND ASSIMILATION.

BY WILLIAM H. METCALF, D.D.S.

[Read before the Alumni Association of the Philadelphia Dental College, Feb. 28th, 1884.]

There has been (of late) much controversy, as to whether assimilation, in its relation to the human economy, is confined to the appropriation of animal and vegetable substances; or, whether it embraces all of the three great Kingdoms; in other words, whether the act of assimilation includes both inorganic and organic bodies. Unfortunately, the general tenor of modern opinion seems to be in favor of organic assimilation, to the exclusion of the inorganic; these writers claiming that inorganic substances are not assimilated, but pass mechanically through the system, serving a certain undefined purpose, but not changing in nature during their transition. By others, it is held, that inorganic substances must first be incorporated within, or taken up by the natural development of the vegetable before they can be properly assimilated by the animal; otherwise they claim that all minerals, salts,

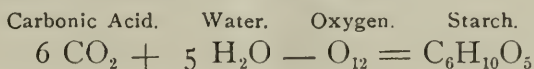
or inorganic matter, will pass through the system mechanically, without serving any true nutritive purpose, but remaining *inert*. It is our purpose, in this paper, to show that such thinkers, while no doubt sincere in their conclusions, may be, nevertheless, mistaken, and probably misled by the natural or sensual aspect or ground from which they view the matter.

Our subject: "Life, Motion and Assimilation," is altogether too comprehensive to be treated with full justice in a limited paper of this nature; therefore, in treating of the relations of Life and Motion, we will accept *a priori*, the conclusions of philosophical minds, which, at present seems to be commonly accepted, or at least to remain undisputed.

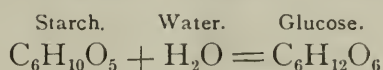
First: *Life* is indicated to us sensually as a form or method of motion; an unseen force, acting upon, or within, a passive physical body. The three great Kingdoms, all seem to be influenced by this occult force, and it is called "*Life*." In animals we see it the most perfectly demonstrated in multitudinous ways or forms, which for convenience, we will designate mental, or emotional and physical. In vegetables, we can discover a prefiguration of these latter animal characteristics, which we may term *reproduction*, growth, &c., &c; while in the minerals, we see no less wonderful signs of life and prefiguration, though, to the casual observer, much more obscure. These latter have been appropriately named "capillary attraction," "chemical affinity," "crystallization," and mysterious electrical, and magnetic influences, which are, even in our day, inexplicable. In the delicate, arborescent, crystallizations of frost upon our window-panes, we recognize the prefiguration of the more highly developed vegetable or plant, and in the plant or tree, with its intricate vascular circulatory and absorbent systems, we see the prefiguration of the more highly developed animal, while at the head of the list of created things, stands man, a microcosm—monarch of all he surveys, the *epitome* of the created universe, the image of his Maker.

Now, starting upon the hypothesis that man, being *superior* to the vegetable and mineral, being (in the language of the ancients) a "microcosm," must necessarily possess all the functional capabilities exhibited by them, it would be easy to prove, philosophically, that he could assimilate inorganic substances as readily as a vegetable could. But we refrain from such a line of argument, knowing the difficulty of presenting the facts satisfactorily in so limited a paper. We would here state, however, that if we accept the premise that an occult force exists, which we have called life, and which we acknowledge we do not thoroughly understand, we must then, in the same breath, admit the possibility of the powers of assimilation, which may include inorganic matter. Glancing at the subject in its chemical and physiological bearings, we find the human body is made up analytically of what? Inorganic matter! About seventy (70) per cent. water (H_2O) and the bal-

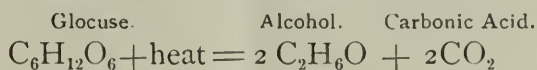
ance Nitrogen, Carbon, and elements, perhaps, less important—lime salts being the most conspicuous. Physiologically, we have the combination of these chemical elements, forming organic matter, and animated by what we have called life. Among these organic elements we will mention starch, albumen, fibrin, and gluten. The prime function of the vegetable seems to be the manufacture of starch, and its subsequent conversion into sugar, these phenomena being accomplished by the inherent life in the plant, aided by light and heat, after the absorption by the plants of the two inorganic substances, carbonic acid and water. We give the formula as given by “Dalton:”



When, by the addition of water, glucose is formed :



Both the saliva and the pancreatic juice of man have this power of changing starch into sugar. Acetic Acid, influenced by heat in the human stomach, is converted into Carbonic Acid and Acetone. Heat will also separate sugar or glucose into Carbonic Acid, and alcohol :



It is also a familiar fact, that, the normal free acid of the gastric juice of man, if neutralized, may be replaced by inorganic acids, particularly Hydro-Chloric. Surely the phenomena of human digestion, preparatory to assimilation, are more complex than any similar properties possessed by vegetables. The great life-giving substance of the world, Oxygen (inorganic), breathed by man and beast from the atmosphere, and by fish from water, we would hesitate to speak of as *inert* in the animal economy. Even the anthelmintic action of a drug has its mystery ; but it by no means seems *inert*. Next to water, lime phosphates are found most abundantly in human milk, and blood, and are supposed to be held there, in solution, by the albumen present. In nutrition, the salts of the vegetable acids decompose into alkaline carbonates and phosphates, and sulphates are formed by oxidation, and serve their purpose. The most important inorganic constituent of the body, in its relation to nutrition, is common salt or Sodium Chloride (Na Cl).

Ruminating animals, when fed exclusively upon vegetable diet, and denied Sodium Chloride, become atrophied, degenerate, and die, *unless they are supplied with an extra quantity of salt*.

Carniverous animals, however, generally receive a plentiful supply from their natural flesh diet, although, we believe, even they have been known to resort to the great “salt licks.” Development, growth, and assimilation, as accomplished by man through the acts of nutrition, seem, therefore, capable of the three-fold power of appropriating animal, vegetable and mineral substances as needed ; and, although we have

tried to avoid the analytical, and present our subject synthetically, by so doing we trust we have been none the less perspicuous. A celebrated German writer, "Treviranus" has said "each single part of the body in respect to its nutrition, stands to the whole body in the relation of an excreted substance." How strikingly true this appears! *Every element* then serves its *specific* purpose, and the act of excretion becomes animal economy; organic and inorganic, *so called* bodies, serve equally the one great end—*man*. This broad view of the subject, makes excretion, and assimilation synonymous terms. What is more assimilated than water, or what more excreted? Leo. H. Grindon, lecturer at the Royal School of Medicine, Manchester, England, an able philosopher and writer, in his work entitled "Life, its Nature, Varieties and Phenomena," speaks of assimilation, as "Genius;" he says: "That admirable and wondrous faculty, which, on the lowest plane, constructs crystals, turning the opaque, and grimy charcoal into the chaste and lucid diamond; which on a higher plane, constructs blood, sap, and tissues, builds them into organs, and then impels them to achieve beautiful and useful works; that same faculty reappears on the highest or spiritual plane as constructive, formative, intellectual force, enabling its possessor, with the help of memory as a handmaid, to become the poet, the sculptor, or the painter. The essential characteristic of *Life* is its constructive organizing force, and this is exactly what characterizes *Genius*."

In the material world we have the mineral kingdom for a foundation, upon which exists the vegetable kingdom, and these two combined form the basis for the existence of the third—the animal kingdom.

So, correspondingly in microcosmic man we find first the bones or mineral kingdom for a foundation, which supports the more complex muscular and vascular system, which latter corresponds to the vegetable kingdom; and lastly, we find the nervous system, which controls the other two, transmits the vital forces, and corresponds to the animal kingdom; and above all, regnant, we find the soul, *the true man*, the image of God, reigning over all of the inferior kingdoms, which sustain and constitute the earthly man. Is it then strange that this wonderful work, this soul-man, a being with God-like free will, should possess the power to appropriate to itself anything, which by reason of its inferiority, must necessarily be subservient?

SIMPLE DIAGNOSIS OF FEVER.—DR. HOLMES relates the following to illustrate the significance of small things in the sick room: "Will you have an orange or a fig?" said Dr. James Jackson to a fine little boy, now grown up to goodly stature. "A fig," answered Master Theodore, with alacrity. "No fever there," said the good doctor, "or he certainly would have said an orange."

VALEDICTORY ADDRESS,

To the class of 1883-4, of the Pennsylvania College of Dental Surgery; delivered at the American Academy of Music, Philadelphia, February 28th, 1884, by G. L. S. Jameson, D.D.S.

GENTLEMEN OF THE BOARD OF CORPORATORS, GENTLEMEN OF THE FACULTY :

Fellow Students : To-day marks the close of an important epoch of our lives, and, though to speak kind words at parting is always a pleasant task, yet I would that to some tongue more eloquent than mine had fallen the lot of delivering our farewell address.

When we look back over our College course, it seems but as yesterday when we first assembled to listen to the initiatory address, delivered in the fall of '82 by our much respected Professor of Anatomy. Then we were strangers, and some of us thousands of miles from our paternal roofs, and, though coming from countries differing in language and customs, the barriers have gradually been thrown down, and ties of friendship have been formed which time and distance will not efface. When we have separated, each to his native clime, how oft with pleasure will we recall the many pleasant, yet swiftly passing, days we have spent together.

The many pleasant instances of our College course will, through years to come, when wearied by the active duties of our profession, spring up in our minds, and turn our thoughts to the familiar halls of our Alma Mater and its many pleasant associations.

What but a few months ago seemed unsurmountable obstacles in our way, have, through close application and perseverance, been gradually overcome, and we have now satisfied the faculty of the Pennsylvania College of Dental Surgery of our ability to enter upon the practice of dentistry, and have had the honor of receiving our diploma from the hand of one, which, if for no other reason, should make its validity world-wide. We have been drawn thither from far distant Germany, Austria, Switzerland, England; from the sunny tropics of Central and South America; from Canada on the North, and Mexico on the South; and from almost every state of the Union, by the justly deserved reputation of our Alma Mater, the fame of which is more than national—it is world-wide,—an institution which has, since its foundation, ever kept faith with its matriculates and the Commonwealth, and which numbers among its graduates, from every quarter of the globe, many who now occupy the highest positions of the profession.

Unceasing efforts have been made by every member of the faculty that we should go away with no superficial knowledge of any branch of our chosen profession. From the chair of Anatomy we have learned of the wonderful mechanism of the human body. From the chair of

Physiology we have learned of its functions in a state of health. We have learned of the agents applied to general and, more particularly, Dental Therapeutics. Of Operative and Mechanical Dentistry, we have had both theory and practice, and, from the chair of Chemistry, we have received a liberal knowledge, not only of the nature and composition of the bodies used in our profession, but of Chemistry in general.

Though our curriculum has been most liberal, and though, in one sense, our professional education has been completed, yet I hope and trust there is not a member of this class but has learned, ere this, how important it is that we shall ever continue to be students. Whether we shall be successful, and have our names ranked among those who have made the science of dentistry what it is to-day, will depend much upon whether we have taken advantage of the many opportunities, thrown open to us during our College course, but to a much greater extent whether we continue to be students. Let us then, as we go forth, firmly resolve, "That each to-morrow find us further than to-day."

Dentistry throws open an extensive and interesting field of research. For example, I doubt if there is a more inviting study for our extra time than the Comparative Anatomy of the teeth. What a key in the hands of a Comparative Anatomist is a single tooth, yea, a mere fragment. He can, from a single tooth buried in the rocks of ages past, not only classify the animal, but describe its structure and habits, and as our Professor of Physiology truly said, when treating the subject, that a whole winter's course of lectures could be spent on this most interesting subject alone.

Superadded to education are many requirements. We, as a profession, will be brought into close and intimate relations with the most refined and educated classes of society, and to secure and maintain such as our patrons, we must have literary culture. It will give us influence, and extend the sphere of our usefulness. We should know, and be able to converse well, act well, and appear well, not only in our offices, but in the drawing room and public assembly.

Indeed, literary culture is needed by every professional man, it will improve his taste, refine his manners, enrich his mind, elevate his morals, in short, will make him wiser, better and more successful.

We must also possess skill, without which we can hope for no success, but must expect continued failures and disappointments. We may have every other requisite of success, but if thoroughness is absent, we cannot hope to obtain the highest results. Thoroughness must be prominent in every operation, and we shall daily receive testimonials that will stimulate us to pursue with greater earnestness the only true path to success.

There is probably no vocation in life in which patience is required

and taxed to as great an extent as the one we have chosen. We will be consulted by patients nervous and irritable, and in such conditions their opinion of our abilities, in many cases, will be formed. Let us then be firm, showing confidence in our every operation, yet kind and sympathizing.

To accomplish great results, besides skill, thoroughness, and patience, such necessary qualities, we must be industrious. Alas! there are many in all professions, groping along in the ruts of years ago, constantly meeting with failures and disappointments. Why? because they lack energy and industry. It was industry that made Dr. Franklin the philosopher and statesman. It was industry that reclaimed Samuel Johnson from the streets and alleys of London, and placed his name among the greatest literary men of the world. It was industry that placed Lord Beaconsfield's name among England's greatest statesmen. It is industry that enables America's great medical authors to accomplish so much literary work. Let these and numerous other examples stimulate us in our professional career, and may we by perseverance and industry work out success for ourselves and the profession of our choice.

If our abilities are such as to command success, the field is inviting; remember the celebrated answer of Daniel Webster: "There is plenty of room at the top."

Dentistry is full in the lower spheres, there is not only no room for more, but already young men, and old men, and men of middle age, are crowding and jostling each other for place and fee, only to be disappointed in what should satisfy the moderately ambitious. If we do not take a course that shall raise us above the masses of co-laborers, we, true, shall always be cramped for room by the ignorant and unskillful. We must raise ourselves above them in skill, tact, and energy, and we can soon breathe in the sweet air of acknowledged superiority.

This, however, cannot be with superficial acquirements. There must be thorough training, and the smaller the abilities the more vigorous, incessant, and self-sacrificing must be the discipline. The requirements of our profession have become so exacting that none but the studious painstaking and persevering can hope for permanent success.

Fellow students, may we, in going forth to enter upon our professional career, aim high. The profession of dentistry has already on its list those whom men will continue to honor as long as man is afflicted with the many ills to which he is heir. Can any profession claim a greater boon to mankind than anæsthetics? The nestor of American surgery has said, "If America had contributed nothing more to the stock of human happiness than anæsthetics, the world would owe her a debt of eternal gratitude."

The field is inviting, much is yet left to be discovered; and may

we, by thoughtful study and research, contribute our share to the relief of human suffering.

“Build, that our works to coming generations, our skill, our strength, our faithfulness shall tell, that as storms and centuries test them, all may say, the men of old built well.”

“Farewell, a word that hath been, must be,—a sound that makes us linger, yet, *farewell*.”

WHAT ARE THE REASONS FOR THE GENERAL USE OF STIMULANTS.

BY HENRY LEFFMAN, M. D.

In addition to the articles constituting food in the usual sense of the term, mankind employs a considerable number of articles, condiments, stimulants and flavors, concerning the effects of which there is much discussion. Most writers lean to the view that stimulants in some form or other are needed, and they base this view not so much on physiological actions as upon the frequency of the use. It is argued that such general use indicates a physiological necessity; but this is a very insecure method of reasoning. It could be made to justify many habits which are known to be injurious to body and mind. It is not likely that we can, at present, find an absolutely demonstrative scientific basis for the use or non-use of stimulants. Despite the extended researches that have been made on digestion and nutrition, the accepted notions on these subjects, as on many other questions of physiology, are largely dogmatic in character. The positiveness with which an opinion in dietetics is asserted, and the eminence of the authorities who maintain it, is in itself no proof of accuracy of such opinion. We have only to look a few years back in the history of medicine to find, perhaps, the opposite doctrine advocated with the same positiveness; certainly we can find many things asserted which are now believed to be erroneous. Thus our ideas in regard to the use of water have undergone great change, and there is no surer proof that the opinions that are now held are wholly correct.

We may, I think, dismiss, as of but little value, the argument that stimulants are necessary because they are universally used; and while not denying the statement in regard to their physiological action, we may, without invidiousness, seek for the basis of this general use in the incidental relations of the stimulants themselves.

In the first place, it can hardly be denied that, with regard to a great many persons, the use of stimulants is merely a matter of imitation. They use alcoholic liquors, tea, coffee, etc., not because they crave them, but because they see others use them. As soon as the child begins to partake of the regular food of the family, these accessory articles are placed before it, and it naturally partakes of such articles. In this way an appetite is acquired. The habit of drinking coffee and tea is with most persons as much a mere matter of imitation as is the use of tobacco. They are all like the German practice of eating raw pork: habits which are not the expression of any physiological necessity, but merely the result of custom and example.

Secondly, it must be noted that the stimulants in common use are agreeable to the palate, and it is in this property that we have the main cause of their extended use. The tastes and dispositions of men have been nearly similar in all times and places; honey was a sweet in the mouth of Augustus, as in our mouths to-day, and wormwood was as bitter. It is not at all to be wondered at therefore, that the delightful aroma of coffee or tea should have made these articles the favorites with many nations. Men and women use these articles because they like them, and not because there is a physiological necessity for them. Some recent experiments have shown that raw meat is more digestible than cooked, but it is not likely that the knowledge of such fact will lead us to give up the pleasure which is derived from eating roast beef and gravy.

In a recent number of the *Edinburg Clinical and Pathological Journal*, Dr. J. W. Fraser gives, as the result of some experiments, that the beverages made by infusion, *e. g.*, tea, coffee, cocoa, retard the digestion of most albuminous articles, and to that extent, cause a loss in availability in the nutriment taken. This action is less with coffee than with other beverages. If these results are correct, it is manifest that the favorite theory that such beverages are useful because they retard tissue waste, can be of but little value, for this economical relation will be neutralized by the interference with digestion. If we are to obtain any favorable action from such beverages they ought, according to Dr. Fraser's results, to be taken between meals. One of the most remarkable conclusions of Dr. Fraser is that tea, by its property of preventing digestion of some part of the food, may be serviceable in preventing over-nutrition in those who habitually eat too much.

Some light is thrown on the main question by the observed facts in regard to adulteration. If coffee and tea are needed by the system, then it must be admitted that a great many persons have never had this need fully gratified, for the adulteration of these articles has been extensive. In this country, for instance, there has been sold thousands of pounds of so-called *essence* of coffee, which does not contain any coffee, nor other stimulant, but which is merely an inferior imitation in color and taste. Large numbers of persons use this article, and therefore do not know what a good cup of coffee is. They do not feel the want of a stimulant, simply because they think they are getting it; if deprived of the daily cup of the substitute many of them would probably complain of the loss, yet in taking it they are getting nothing but an infusion of some charred vegetable matter. Similarly, in Europe, where ground coffee is sold in packages, adulteration with chicory is very common. Chicory is a substance having no relation to coffee, and is not physiologically a substitute for it, yet, based on a similarity in the color and taste of the infusion, its use has become so general that it appears that many persons are perfectly willing to use it with coffee. During the civil war, on account of the great advance in the price of coffee, many families resorted to the use of rye grains, or mixture of bran and molasses, roasted until they acquired a dark brown color, and then infused. The infusion, when mixed with sugar and milk, had much the appearance and taste of coffee, but it was obviously without special value. Its use, however, may be regarded as evidence that drinking coffee is largely a "matter of taste."—*The Polyclinic*.

WOMEN IN THE DENTAL PROFESSION.

In the February number of the *Dental Practitioner*, I was pleased to see that C. N. P. had given a few facts in regard to women in dentistry. To Dr. Kingsley's inquiry, "Is there in dentistry a field for woman?" I should like to add the testimony of my own experience,—and also in reference to her exactness. From my knowledge of the occupations of women, and the results of their labor—where delicacy and exactness are a requisite of success, they certainly bear comparison with those who are recognized as the stronger sex, and if we take into consideration the early training, and the lack of incentive by way of more moderate compensation, the difference is certainly less conspicuous.

If a personal allusion may be pardoned, I would state that, in the spring of 1874, I received my degree from the Pennsylvania College of Dental Surgery, and during a continuous practice of ten years, I have not, on account of sickness, been absent from my office a single hour. From my profession I have enjoyed a delightful remuneration for my labor, and been free from the unpleasant and oftentimes humiliating restraint to which many occupations pursued by women are subjected. And though my mechanical and inventive skill is at times taxed, the labor in every department is a pleasure, and results bring me a gratification that few pursuing unskilled occupations can enjoy. My friend, Dr. Valeska Wilkie, of Prussia, who was a member of the same graduating class in 1874, and one of the most accurate and beautiful operators in the class, as well as a finished mechanic, was not infrequently asked for advice and assistance by her brother students. One of the first women to open a dental office in the conservative city of Philadelphia, I think I can appreciate the unwarranted prejudice against women on the plea of physical and mental inability, but which is now, fortunately, giving way to a more just appreciation of talent wherever found. Do not understand me as claiming that all women, more than all men, would make proficient dental operators. But open the door alike to both men and women, and recognize capacity without regard to sex.

I have not, however, been without friends to assist me in my educational effort—to my generous and uncompromising preceptor, Professor James Truman—I owe the opportunities I have enjoyed, and much of the success I have attained, and it is with pleasure I embrace this moment to thank him, for not only what he has done for me, but for the untiring and disinterested effort he has made, and is continuously making, for the elevation of women, trusting that the success with which his efforts have been crowned will be his reward.

Hoping that all women entering the profession will meet with encouragement commensurate with their capacity,

I am yours truly,

ANNIE D. RAMBURGER.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

The Twenty-eighth Annual Commencement of the Pennsylvania College of Dental Surgery was held at the American Academy of Music, Philadelphia, February 28th, 1884, at 8 o'clock, P. M.

The address to the Graduates was delivered by Prof. J. EWING, MEARS, M.D.; the Valedictory by G. L. S. JAMESON, D.D.S.

The number of students for the session of 1883-84 was one hundred and thirty-nine. The degree of Doctor of Dental Surgery was conferred upon the following graduates:

Lawrence C. Anderson, Mississippi; George S. Andrews, New York; Thomas Ashton, Pennsylvania; William L. Bacon, Virginia; Maria Katherine Benkard, Germany; E. R. C. Blackburn, Pennsylvania; C. Curtis Coffee, Ohio; George W. Cupit, Pennsylvania; George Culbertson, Pennsylvania; Marie D. C. Dalmer, Germany; Vasco A. Da Silva, New York; Fremont D. Davis, Ohio; Heinrich Deutschmann, Germany; William P. Dickinson, Iowa; J. Frank Dougherty, Ohio; Sophie E. Feltwell, Pennsylvania; Alexander L. Forester, Pennsylvania; August Gassner, Germany; A. M. Green, Pennsylvania; Herman Gutzwiller, Switzerland; A. W. Hafer, Pennsylvania; James J. Hamilton, Pennsylvania; Louis Haubeil, Germany; Ferdinand Hegemann, Germany; Edwin H. Hewitt, Wis.; Kurtz P. Hill, Pennsylvania; Pantaleon Hoyos, U. S. of Columbia, S. A.; Parker B. Hunt, Pennsylvania; G. L. S. Jameson, Canada; George A. Jarvis, Michigan; George Norman Johnson, New Hampshire; Arthur S. Kniffin, New Jersey; Wilhelm Koehncke, Germany; Prosper A. Ladmore, L. S. D., England; Hugh J. Laird, Pennsylvania; Henry Leffman, M. D., Pennsylvania; Alex. P. Long, Pennsylvania; Victor Magliocco, Pennsylvania; Henry Maser, Ohio; C. H. M. Neall, Pennsylvania; Nazario Noguera, South America; Enrique Noguera, South America; Harvey E. Nyer, Pennsylvania; Juan Ph. Orozco, Salvador, C. A.; Pedro A. Palatio, Cuba; Joseph A. Phillis, Pennsylvania; Paula Pratz, Germany; Charlotte Renard, Germany; Guy C. Rich, New York; Nicholas Rocha, U. S. A. of Columbia, S. A.; J. Sabater Rivera, Porto Rico; John Schembs, Pennsylvania; Valentine Schmitt, Germany; Courtland S. Service, Pennsylvania; Marcus Sichel, Germany; T. Frank Spencer, Rhode Island; Herman Stocker, Switzerland; Jose S. Tamayo, U. S. of Columbia, S. A.; Robert Addison Todd, Montana; O. S. Watrous, Connecticut; Charles Wetzel, West Virginia; Frederike Wiesner, Austria; Marvin A. Wint, Pennsylvania; William N. Wirt, Indiana.

IT DIDN'T HURT.—“Be yez the dintist?”

“Yes; what is it?”

“Could yez extricate me tooth widout hurtin’?”

“Well, yes; if it don’t hurt I won’t charge you a cent.”

“All right, docthur. Come on wid yer wrinchin’ irons. O o-o-ohouch! Howly murther! Hold on! O—”

“There it is; did it hurt?”

“Nary damn bit! Good day, docthur. God bless yez!”

“But stop; what made you yell so?”

“Faith, I was feelin’ good, thinking it wouldn’t cost me a blarsted cint.”

PHILADELPHIA DENTAL COLLEGE.

The Twenty-first Annual Commencement of the Philadelphia Dental College was held at the American Academy of Music, Philadelphia, February 29th, 1884, at 8 o'clock, P. M.

The address to the Graduates was delivered by Prof. S. H. GUILFORD, A. M., D. D. S.; the Valedictory by EDGAR L. GARDINER, D.D.S.

The number of students for the session of 1883-84 was one hundred and twenty-nine. The number of preliminary readers was sixty-five.

The degree of Doctor of Dental Surgery was conferred upon the following graduates:

Elmer B. Abbey, Connecticut; Thomas B. Arnold, Rhode Island; J. Tenney Barker, Connecticut; E. Bergstresser, (M. D.), Pennsylvania; Herbert A. Birdsall, New York; Charles A. Bills, Maine; John Darbey Blakeslee, Ohio; John H. Boozer, South Carolina; Edward Brettschneider, Germany; Philip H. Carlyon, Washington Ter.; Francis E. Cassidy, Massachusetts; Hayes Agnew Clement, Pennsylvania; S. S. Castello, Maine; Augustus R. Cooke, New York; Norris R. Cox, Oregon; Thomas A. Croaker, Nova Scotia; William H. Davenport, Massachusetts; Horace G. Darling, Vermont; Curtis L. Erwin, Pennsylvania; John I. Evans, New Jersey; George H. Fluck, Nova Scotia; Edgar L. Gardiner, Rhode Island; Matthew S. Gooding, New York; Milton E. Gray, New York; J. N. Harris, Maine; George H. Hardisty, New York; Merton R. Harned, Illinois; Willard Evart Hall, New York; Lloyd A. King, Kentucky; Carl Knabe, Germany; Jesse T. Krewson, Pennsylvania; Samuel Lightcap, Pennsylvania; William G. Long, Illinois; William J. Magill, Connecticut; T. R. Meed, Minnesota; William H. Metcalf, New York; Frank A. Monroe, New York; George F. Nevius, Indiana; Charles S. Rogers, Pennsylvania; M. A. Richards, New York; Hans Riegner, Germany; Frederick O. Sawyer, Maine; Bernard D. Schlaudecker, Pennsylvania; Rafael S. Sevilla, Mexico; Louis N. Seymour, New York; M. B. Smith, Pennsylvania; William C. Stokes, New Jersey; J. Harvey Stooksberry, Ohio; Randolph M. Stratton, Pennsylvania; Theodore Stanley, Jr., Missouri; F. Tanzer, (M. D.) Austria; W. Spencer Taylor, New York; Edwin Ariel Thomas, Massachusetts; James F. Thompson, Pennsylvania; William Ray Tovell, Australia; Ernest W. Tovell, Australia; Alberto Vallarino, Panama; Dan. J. Wait, Montana; Clarendon P. Webster, New Hampshire; James L. Whinery, Iowa; J. Harley Wood, New York; William A. Woodward, Pennsylvania; Joseph J. Worsham, Georgia; James F. Wright, Indiana; George H. Yates, New York.

BURNS.—Bicarbonate of Soda is one of the most effectual remedies for burns, and the pain from them is soon alleviated by its application; and no evil results seem to ensue from its external application. It may be applied as a powder, dry-strewn over the burn, or linen rags may be soaked in a solution (1 in 50) and laid on the burn, and replaced by others when dry. In changing the rags, should any pus be about the burn, under the rag, it should be carefully wiped off before another moistened rag is applied.—*From the Druggists' Circular.*

ALUMNI ASSOCIATION OF THE PHILADELPHIA DENTAL COLLEGE.

At the Annual Meeting of the Alumni Association of the Philadelphia Dental College, held February 28th, 1884, it was unanimously decided to hold *monthly* meetings in the future. These meetings will always be held on the *first Tuesday* of each month, in the College building, 108 North Tenth Street.

The Executive Committee have felt that it is best for these sessions to take more of a literary aspect than a purely dental one, and it is hoped that the members who may present papers will bear this in mind.

It is earnestly desired that those of the Alumni who are not members of the association will immediately connect themselves with the organization by sending one dollar (all the dues for all time) to the Treasurer, Jos. R. C. Ward, D.D.S., 309 North Nineteenth Street.

The next meeting will be held on the first Tuesday in April, at 8 o'clock, P. M. Subject of paper and discussion to be, "Are or are not dreams the result of residual impressions?" It is trusted that members will come prepared to take part.

L. ASHLEY FAUGHT, D.D.S.,

Chairman Executive Committee.

THE QUERIST.

In reply to "A. Bore," who asks how to mend broken engine cables, we have received three answers, which are so nearly alike that it seems unnecessary to publish more than one in full. We have selected the first one received, but extend thanks equally for all :—[ED.]

"A. Bore" asks how to mend a broken engine cable. Let him proceed as follows: Take a piece of very thin brass plate, or, if he has not this, a piece of very thin silver or platinum plate, about one inch long by one-half inch wide, let him bend this around the cable like a little ferrule. Now tin the inside of this ferrule with tinnings' solder: this is readily done by holding it with a pair of soldering tweezers and covering it on the inside with muriate of zinc, or the liquid which comes with the chloride of zinc for filling teeth. Place a small piece of the solder inside the ferrule, and hold it in the blaze of an alcohol lamp, and with a piece of brass wire, smaller than the inside of the ferrule, the solder is made to flow all over by rubbing this up and down and all around the inside of the ferrule. Lay this one side to cool. Now pre-

pare the broken ends of the cable by cutting off or filing the ends square, wash off all grease and file the ends bright, coat the ends with muriate of zinc, and, with any piece of brass or copper plate, improvise a small soldering iron with which to tin the ends of the cable. When these are tinned, place the ferrule over the ends of the cable, letting a half-inch lap over each end. Now apply a little muriate of zinc to the parts, and place a piece of solder on the open end of the ferrule, and hold over the blaze of a spirit lamp until it melts. If not enough to hold it firmly, put a little more solder. Hold it steadily until it cools, and the cable is mended. I have used mended cables six months without their breaking again, and have repaired them in this way several times. The best place to mend them is midway between the pulley and the handpiece. The measurement for the piece of brass plate for the ferrule herein given, is intended for small cables, not the larger cables, such as are used in the S. S. White Improved Dental Engine.

THEODORE F. CHAPMAN, D.D.S., Phila.

“REX,” Lincoln, Neb., in his reply, suggests dipping the broken ends in ammonia and holding in flame of spirit lamp, to clean from oil before soldering; and G. W. ADAMS, Bristol, Pa., says: “Dress off nicely with old file to avoid catching or friction;” also, “a *mended cable* is a great deal like a pair of *mended boots*, not so nice or neat as when new.”

A lad about twelve years of age called to see me recently, stating that in falling he had loosened a tooth. Upon examination, I found a fracture in the right upper central, commencing at the alveola border on the labial surface, and extending upwards and backwards to a point about a line beneath the border on the palatine surface. Although the accident occurred several days previous, the pulp was alive and giving no trouble. There was slight inflammation of the gum.

Two saddles were made, fitting over the cutting edges of the centrals, and extending to the margin of the gum on their labial surfaces. These were connected by a bar soldered across them in front; the left one having a slight lip turned at its upper extremity, to assist in attaching it to the tooth. The appliance being ready, some phosphate of zinc cement was prepared, and placed over those surfaces coming in contact with the teeth, and it was pressed gently and firmly to place, being further secured by a silk ligature around the sound incisor. The splint has been in position for about a month, and affords firm support to the fractured tooth, which, as yet, has given no signs of trouble.

Have any of the readers of *The Dental Practitioner* had a similar case which resulted in a union of the parts? What are my chances of success?

DOUBTFUL.

EDITORIAL.

ALUMNI ASSOCIATION OF THE PHILADELPHIA DENTAL COLLEGE.

The twenty-first annual meeting of this Association was held in the College building, February 28th, 1884. The meeting was largely attended and was unusually interesting and profitable. Papers were presented by Dr. J. Lehman Eisenbrey, of '68, and Dr. Wm. H. Metcalf, of '84. Interesting remarks were made by Prof. Stelwagen, Drs. Ward, Cryer and others, which, together with the admirable address of the retiring president, Dr. L. Ashley Faught, contributed to make this the *best* meeting of the Association it has been our good fortune to attend.

From year to year the interest in this Association deepens, and its influence and power increases. Upon its roll appear the names of some of the most successful practitioners, teachers and writers in the dental profession, and the privilege of membership is an honor of which every graduate of the college should avail himself.

During the coming year the experiment of holding monthly meetings will be tried, at which not only dental but literary and social topics will be presented and discussed, the object being to make the meetings educational and refining in the broadest sense.

THE ANNUAL BANQUET

was in every way a success. Unusual interest was added to the event by the presence of Professors Garretson, Stelwagen and Kingsbury. All the members present came in good trim, and seemed determined to make the present occasion one of unalloyed enjoyment. The "chunks" of wit and wisdom each disgorged were only equaled by the amount of good things he stowed beneath his vest. The assemblage was remarkably harmonious and *fraternal*, each contributing his mite for the entertainment of the whole. Those who were fortunate enough to be present at the twenty-first annual banquet of the Alumni Association of the Philadelphia Dental College will not soon forget the pleasure.

The present officers of the Association are as follows:—President, James E. Garretson, M.D., D.D.S., Philadelphia; First Vice-President, A. R. Cook, D.D.S., New York; Second Vice-President, W. A. Breen, D.D.S., Philadelphia; Third Vice-President, Norris R. Cox, D.D.S., Oregon; Treasurer, James R. C. Ward, D.D.S., Philadelphia; Secretary, Charles E. Pike, D.D.S., Philadelphia; Executive Committee, L. Ashley Faught, D.D.S., Philadelphia; M. H. Cryer, D.D.S., Philadelphia; J. Lehman Eisenbrey, D.D.S., Philadelphia.

NEW BOOKS.

A SYSTEM OF ORAL SURGERY: *being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth, and Associate Parts*; by JAMES E. GARRETSON, M.D., D.D.S. Fourth Edition. Thoroughly Revised, with additions. Philadelphia: J. B. Lippincott & Co., 1884. Can be obtained from the Publishers and Dental Depots. Price, Extra Cloth, \$8.00. Sheep, \$9.00.

When compared with former editions, the evident expenditure of time and care in rewriting, the extensive additions of new matter, the many new and original illustrations, almost entitle the fourth edition to be classed as a new production.

The degree to which the author has been able to condense the text of his chapters, conveying his information in the fewest words possible, is something remarkable, and, so far as we know, without a parallel in medical and dental text books.

The reader is not obliged to wade through pages of *words* to catch a few *ideas*, nearly every sentence conveying a thought, clearly and tersely. The author truthfully says, "Irrelevant matter is not present to perplex."

Prof. Garretson does not confine himself solely to the discussion of such diseases of the oral cavity and its surroundings as call for surgical interference, but the systemic conditions arising from them or tending to produce or aggravate them are as carefully and fully considered.

In the preface, he says:—"The fact that this 'system' has come into common use by dental colleges makes desirable unexceptional fullness in the direction of things considered by the specialty. Effort has been made to have no principle absent."

The diseases of the teeth, and their treatment, the materials used and the manipulations required in filling them, and the methods of replacing them when lost, are features of the work which one might not be led to expect from a casual glance at its title. To say that the new chapters on "Inflammation" and "Diagnosis" are alone worth the price of the book, but feebly expresses their merit.

To keep pace with the rapid advance of our ever-progressing profession, a man must be an extensive reader, a close observer and a *hard worker*.

That the author is such a man, a perusal of the fourth edition of his work on Oral Surgery abundantly proves. It does more; it proves that he is not only entitled to a place in the front ranks of his profession, but that he is a *leader* also.

While it would not be possible for any man to present a work of this character which would be accepted, without question, by everyone,

yet so comprehensive are the subjects presented, and so minutely and thoroughly considered, we have no hesitation in saying, that, could the dental profession have but *one* of the text books now in existence, Garretson's System of Oral Surgery would be, *par excellence*, the book.

It is a credit to the author, to the publisher and to the dental profession.

DENTAL MEDICINE: *A Manual of Dental Materia Medica and Therapeutics for Practitioners and Students*; by FERDINAND J. S. GORGAS, A.M., M.D., D.D.S. Philadelphia: A. Blakiston, Son & Co. 1884. For sale by the Publishers and Dental Depots.

Price, \$3.00.

A work of over three hundred pages, containing such a fund of information, systematically and conveniently arranged, that it cannot fail to be recognized as the *best* book of the kind with which the dental profession has been favored.

The world-wide reputation of Prof. Gorgas as a successful practitioner, teacher and writer, is a sufficient guarantee that the information conveyed is *reliable*, a most desirable feature in any text book. After a "Definition of Subjects" and some "General Remarks," the author presents a most valuable chapter on "Important Points in Diagnosing Affections of the Mouth," which will prove of incalculable advantage to the inexperienced, and will, no doubt, often help "older heads" to arrive at correct conclusions in some obscure cases.

The following are some of the subjects treated: "Characteristic Indications of the Tongue," "Abbreviations," "Weights and Measures," "Rules for Regulating Doses," "Table of the Doses of Medicines," "Poisons, their Symptoms and Antidotes," "The Pulse," "Classification of Medical Substances," "Definitions of the Various Classes of Remedial Agents," "Forms in which Medicinal Substances are Employed," etc., etc.

The author then takes up "Dental Materia Medica and Therapeutics," proper, and gives the name, source, description, chemical constituents, medical properties and action, dose, therapeutic use and dental use of over one hundred medicinal substances, together with such formulæ as have proved most satisfactory in his own practice, or in the hands of other reliable practitioners.

We have not attempted to enumerate *all* the good things in the book, but sufficient to indicate its general character. The need of such a work has long been felt by the profession, and we make no doubt its rapid sale will express their approval of it.

Issuing from the well-known publishing house of Blakiston, Son & Co., the typographical and mechanical part of the work needs no further comment than to say it fully maintains their reputation for excellency.

VULCANITE AND CELLULOID: *Instruction in their Practical Working for Dental Purposes*; by S. ELDRED GILBERT, D.D.S., Instructor of Clinical Dentistry in the Philadelphia Dental College. Philadelphia: The S. S. White Dental Manufacturing Co. 1884. May be obtained of the Dental Depots. Price, 75 cents.

"The aim of the author in the production of this volume has been to present the subject-matter as concisely and plainly as possible, as the work is designed especially for the use of students. Practical hints upon the taking of impressions of the mouth are first given, and these are followed by a consideration of materials and processes, step by step, up to the completion of the case."

PAMPHLETS, ETC.

THE DENTAL STUDENT: *A Quarterly Dental Journal*. Published by CHARLES A. RIGDON, Warsaw, Indiana. Subscription, 25 cents per year.

This is the "*newest*" new dental journal, and as the editor "metaphorically extends his hand, we, in like manner, grasp it cordially and wish him all success.

A CONSIDERATION OF TEMPERAMENT IN RELATION TO THE TEETH; by JAMES W. WHITE, M.D., D.D.S. Philadelphia: The S. S. White Dental Manufacturing Co. 1884.

This is a reprint from the *Dental Cosmos*, of February, 1884. The publishers have wisely considered the article of Dr. White, upon the above subject, of sufficient importance to be republished in pamphlet form. It is an able and timely paper, and we cordially recommend those not already in possession of the February number of the *Dental Cosmos* to obtain it or the present publication.

DENTAL JURISPRUDENCE; by RICHARD GRADY, D.D.S. Baltimore: Snowden & Cowman. 1884.

A pamphlet of twenty-one pages, calling attention to the importance of dental testimony in establishing identity, etc.

THE POLYCLINIC: *A Monthly Journal of Medicine and Surgery*; Conducted by the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine. HENRY LEFFMAN, M.D., Editor-in-Chief.

EL PROGRESO DENTAL DE LA HABANA: Revista de Terapeutica, de Cirujia y de Protesis Dentarias. Organo del Colegio Dental "El Progreso. Redactores, FRANCISCO P. RODRIGUEZ, FREDRICO POEY, DONATO MEJIAS. Redactor y Administrador: TOMAS J. MANFREDI Redaccion y Administracion, Lealtad 137.

THE Dental Practitioner.

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No. 4.

A DAY'S PRACTICE.

BY I. S. FOGG, D.D.S., PHILADELPHIA.

In a recent number of "*The Independent Practitioner*," there appears a paper under the above caption read before the American Dental Society of Europe, by Dr. Jenkins, of Dresden, which, though brimful of humor, contains in its opening and closing sentences matter for serious thought and reflection.

The first thought that presents itself as we read of the Doctor's morning entrance to his office, is, how will he get through the day and preserve a dignified, courteous and amiable manner, in spite of the interruptions of unexpected calls and demands upon his most valuable time, in addition to the numerous irritating and exasperating incidents so common to the every day life of the busy dentist.

The closing sentence of the paper, in which is told, in serio-comic vein, the doctor and his family's disappointment caused by his overwork and belatement, suggests the thought that such "a day's practice" has its telling effect upon one's energies, strength and life; and further, as to the showing of the financial record at the close of the day—in short, how much more than the actual demands of the day's living had been earned towards a competency for that time, when, after years of such day's practice, the eye does not so readily detect the cavity "high on the approximal surface of the molar," the hand has become too shaky to perform, with certainty, those delicate, contour operations, such as "restoring the lost point of a canine" and which, in the earliest years of his practice, he delighted to make—in plain words, when years are telling to an extent that his patient inquires of another: "Who is your dentist? Mine is getting too old."

The statistical fact that the average life of the dentist is short, seems to suggest the importance of a remuneration for his services that will enable him to provide something for his old age, or for the "young barbarians," in the event of his early "taking off;" but so far from that

being the case, it is beyond dispute that no professional labor, taking into account the strain upon both the physical and nervous forces, is so illy rewarded as that of the conscientious dentist, the prevalent idea among his patrons that he is the most conscienceless extortionist licensed by law, to the contrary notwithstanding. Among the trials that tell so wearily on the over-worked and tired dentist, causing him to forget his determination of the morning to preserve an amiable and gentle manner under all circumstances, is this prevalent idea, that he earns too easily and quickly, or rather, that he does not earn at all the fee he demands and the consequent annoyances, ranging from the "little unpleasantness" to open and outright dispute in the matter of the bill. This trouble is, doubtless experienced by all dentists alike, whether of that class known as "moderate in charges" or those whose services command the highest fees.

The Doctor, entering his office with the determination of preserving his evenness of temper throughout the labor of a busy day, may manage to succeed in spite of the interruptions of unexpected demands upon his services, especially when such demands are made by strangers or new patients. But when the mail brings, in company with the appeal of Madame Wheinoffska for "his breakfast time," and the command of "Lady Buzz," who must have her "tooth stuffed, though it be at the sacrifice of his dinner,"—complaints of charges, to say nothing of reflections upon his honesty, like the following, he may be pardoned if his good resolutions threaten to take flight, and leave him unamiable and out of humor for the rest of the day. Smith writes: "I am in receipt of your bill for dental services. Please look over your account and see if you have not made a mistake. When I came to you, I told you I was unable to pay "fancy prices," but when you charge me \$25 for eight fillings, I think you must have forgotten that I am no Rothschild. Yours, etc."

Jones writes: "Enclosed find check for \$45 for the plate you made my wife. . You will, I hope, pardon my candor, when I tell you that both she and I consider the bill extortionate. We did not think it necessary to make a bargain with you beforehand, supposing that you would charge what was *right*. Yours, etc."

As this was the Doctor's first experience with Smith, he controls, as best he can, his disgust and disappointment at this want of appreciation of the consideration shown him (having, in view of his inability to pay "fancy prices," and with the fact before him, that his patient was "no Rothschild," charged him, as he conscientiously feels, a fourth less than he should have done), and resolves that when the day's work is finished, he will write and tell him so. But, alas! for Jones, whom he has for many years considered among the most liberal and appreciative of his patients and friends, that he should take exception to the charge in this case (which was for a difficult partial lower denture on gold), he cannot wait till

office hours are over to settle him, but leaving the dam on his patient to take care of itself, he, with many mental "dittos," proceeds to write to Jones a curt note, returning the check, and declining to accept it with the imputation of dishonesty which accompanied it.

The above are fair specimens of complaints so unreasonable and unjust as to tell with more wearying effect upon the nervous man, than the actual labor of the office.

Though Smith pays his bill (with a dogged reticence, however, that is meant to convey the idea that he still considers himself swindled) and comes back smilingly when he again has need of the doctor's services, and though Jones immediately returns the check with many apologies and disclaiming any intention of reflecting upon the doctor's honesty, these episodes are none the less annoying at the time.

If, in addition to the numerous drains upon his patience, incident to his office practice, the dentist can bear them, and, preserving a serene and equable temper, still rejoice in the feeling that "neither patience nor faith are subjected to a greater strain than he can bear," happy is he indeed, and truly may it be said of him, "He is greater than one who taketh a city."

THE PARTIAL LOWER PLATE.

BY FRANK R. FABER, D.D.S.

(Mechanic to the Profession, Philadelphia, Pa.)

As to the necessity and ultimate success of these operations opinions are about equally divided among the members of the profession. Everywhere the subject is broached it has its partisans and opponents. Dr. A. expresses himself as very much pleased and gratified, fully sympathizes and agrees with the efforts of the essayist, and it has been his rule to recommend them to his patients ever since he has been in practice. Dr. B. takes the opposite side of the question and expresses himself as discouraged with fixtures of this kind, enumerating among the objections, difficulty of obtaining a good impression, failure of the fixture to remain in place, pressure upon the natural teeth and consequent soreness and shifting of them, recession of the gums on the lingual surface, and pain in attempting to masticate food.

The above is the sum and substance of a paper read and discussed at a meeting which I once attended, when I was very young in the profession, and had not yet gathered confidence enough in myself to express my views but was content to listen. Since then my experience with partial lower plates has been rather extensive, and my almost uniform success has led me to select this subject for my paper. I know I am treading upon dangerous ground, but I will endeavor to set forth my views upon the subject, and methods of procedure to benefit any of the

craft who may have difficulty in this direction, or may wish to venture into one of dentistry's neglected by-paths. The impression: take it in anything you are most familiar in using, or with which you can get the best results; wax is good "if you can use it." I have met some of the older practitioners who can take a beautiful wax impression, but it seems to be becoming one of the lost arts, for, I am sorry to say, that I have yet to meet the first one of the younger school who could use wax, in fact most of them are ashamed to acknowledge that they ever use it, except for bites and base-plate purposes. If the teeth are straight, and the mouth easy of access, modeling compound will answer very well, but in the majority of cases plaster is the best; the cup with a square bottom will almost always be found the most useful; the sides must be deep and the cup wide enough to allow the natural teeth to touch the bottom of it. Some cases will require a special cup, this can readily be made out of German silver, gauge 22. Take a wax impression in the best cup you may have, pour it, and build up the model with wax to the size you desire, get out the dies, swage up the cup, solder a handle on it, and you are ready. Oil the inside of the cup, use quick setting plaster, press down until the teeth touch the bottom of the cup; stretch out the folds of the cheek, and direct the patient to point the tongue upwards, when the plaster has set as hard as it will in the mouth, remove the cup, pass the index finger back to the position of the molar teeth, and break the impression upwards; same on the other side. With these two pieces removed, and they will come away very readily after this process, the ingenuity of the operator will show him how to remove the rest with as little breakage as possible. Put the pieces together in the cup, make the model, it will need some trimming and smoothing but the result will delight any man who takes a pride in an accurate model.

What material shall this plate be made of? Metal invariably. The greatest percentage of successes in this direction are from metal. With a pencil, mark out the plate, and mark it small. A very old and successful practitioner is credited with this piece of instruction to his students: "Cut your lower plate until you think you have spoiled it; then cut it a little more, and a modification of this is one of the best rules I have ever followed." Place a layer of wax upon the outside pencil-mark, about the thickness of 28-plate, this will raise this edge of the plate off the gum; wax over the gum line of any teeth standing alone, and never neglect to magnify with wax those little protuberances of gum which stand in the mouth distally to the canines, when only the six oral teeth remain. If only one tooth is to be supplied at any particular position on the plate, wax up that space so that the plate is raised off the mouth. The inside needs no preparation, for it will not drive absolutely close. This procedure secures the pressure upon the ridge, where it is wanted. If the case cannot be moulded with the teeth on, saw half through with a fine jeweler's saw, and break them off at about

two-thirds of their length toward the gum. If any under cuts now remain the case will have to be moulded with cores. Take marble-dust and enough plaster Paris to set it; mix with water, and fill the under-cuts, having previously oiled the model where the cores are to be placed; it will now drop out of the sand easily and perfectly; remove the cores by tapping the model to loosen them, or by raising them with a wax-knife blade; place them in position in the sand, and fasten in with the same mixture; dry out thoroughly, and cast in zinc with lead counter. In order to do this perfectly, two, and sometimes three sets of dies are necessary, reserving the best one for the final swage; use two plates of 26-gauge soldered together. A better adaptation is obtained with two thin plates, and there is less liability of tearing in swaging than if one thick one is used. The plate should extend about one-third up the tooth toward the cutting edge.

This will not affect the gums at the necks of the teeth, will not cause them to recede, and there will be a total absence of the disagreeable results which occur when the plate is filed and fitted around the necks of the teeth, leaving edges and points to press and irritate when the plate sinks, which they all do, and allow the gums to be pinched, and sometimes promote a fungus growth. Light clasps of No. 26-gauge should be used, unless the teeth can be ground or the plate be made to obviate the necessity of them. Use them broad, and clasp the bulge of the tooth as near to the crown as is admissible. Clasps are not always necessary, and in most cases after the patient has become somewhat accustomed to the presence of the plate, they can be removed. Use plain teeth, and stand them upon the plate, and not upon the gum. They can be soldered or attached with vulcanite, according to the judgment of the operator, and so articulated that they strike even with the natural teeth. The practice of raising the bite to bring the first pressure upon the artificial teeth in these cases is to be avoided. Embellishment of the plate, turning up bands, soldering on wires, or any attempts at beautifying the plate are to be avoided. When you get a good fit, be content to allow it to remain a good fit; experience is a good teacher in this respect.

The above methods have, in a great measure, overcome Dr. B.'s prejudices. With a good impression the foundation is laid. With one or two judiciously adjusted light and springy clasps, kept off the gum, the fixture will remain in place. If the dies are correct, there will not be pressure upon, and consequently soreness of the teeth. If the edge of the plate does not press or cut at the neck of the tooth, there will not be recession of the gums, and if the plate is made small enough, and the edges raised to prevent pressure upon the soft portions of the mouth and bring it upon the ridge, there will be no pain in mastication, and the inconvenience will be slight, while the patient is becoming accustomed to the fixture. Now the patient has something to keep the muscles in

place, and hold the cast of feature, something to prevent the natural teeth from tilting forward and destroying their own occlusion. Something to assist in mastication, and relieve the remaining teeth from doing each one the work of two or three teeth, and if the plate supply the molars and bicuspid, something which will keep the inferior maxilla in place, and not alter the whole expression of the patient by the protrusion of the same, in the reach for and trituration of food upon the front teeth. Something which, if the patients only wear occasionally, has given them an idea of the management of a lower plate, and a consequent lessening of their troubles, should they ever be so unfortunate as to require a full denture.

TREATING AND FILLING PULPLESS TEETH.

BY JOS. R. C. WARD, D.D.S.

[Read before the Odontographic Society of Pennsylvania, March 18th, 1884.]

MR. PRESIDENT AND GENTLEMEN :

Feeling convinced that this subject is one that requires much at our hands as practitioners of dentistry in the city of Philadelphia, where the percentage of dentalized pulps is very large, I thought I would present to you this evening my method, or the treatment such cases receive at my hands, not claiming any originality, but merely to present the different manner of manipulation, and to profit by your discussion, believing that practical views are of more profit and service to the practitioner than theory, unless the theory can be put into general practice and be backed up by experience.

First, the cause or necessity which requires such treatment; there are many causes which lead to the necessity of the destruction or devitalization of the pulp; these are well known to you all, and I will not intrude upon your time to describe them, except to mention that the principal causes are deep-seated caries with almost or complete exposure of the pulp, attended with local inflammation—the impacting of filling material to close upon the overlying dentine, causing pressure upon the pulp, inducing inflammation and subsequent death—malleting of large gold fillings, and finally, a blow upon the tooth, from which it never recovers and the pulp dies. We also have periosteal troubles which extend to the pulp and destroy it, but as my paper considers the treatment of the teeth after the death of the pulp occurs, I will pass the causes that lead to such treatment.

We will now take up a case, where, after thorough examination, we find an exposure of the pulp and its destruction at our hands indicated. I need hardly add that in all cases I apply the rubber dam, remove all the soft disintegrated dentine, more readily with sharp excavators—principally spoon-shape—with less pain to the patient than with the burrs of

the dental engine. If there has been much inflammation, or the exposure of long standing, we first apply morphia paste; if the patient can give the time, we cover the application with cotton and sandarac and dismiss them until the next day. If, however, we are doubtful about their return when the pain has, in a measure, subsided, we apply the morphia paste for fifteen or twenty minutes. If there has been no inflammation and a recent exposure, we apply creosote freely, and let remain a few minutes. We now proceed in all three cases alike; that is, apply the arsenical application, covered with a small piece of cotton saturated with creosote and covered with cotton and sandarac, and dismiss the patient for two days. At the next sitting we remove the pulp; if still sensitive, by frequent use of strong carbolic acid (crystal) we overcome all sensitiveness, comparatively.

Our treatment now consists, first, in treating through the original canals, as our experience has taught us that, in many cases, in attempting to open up the canals you too frequently make new ones, leaving the natural ones at the most important part for successful treatment, near the foramen, unaltered. Not in one tooth in a hundred will you find the canals sufficiently straight to allow you to follow with the engine drills, and very few with the soft, flexible hand instruments; we allude particularly to bicuspid and molars, and, in our opinion, too many failures in the treatment and filling of pulp canals are due to the attempt to open them to the apical foramen, and sometimes drilling through the side of the roots. We therefore repeat, that we treat and fill through the original canals, removing the pulp, thoroughly cleanse them; sometimes, in case of continued discharge of pus, or when offensive after removing old fillings, we use tepid water, syringing well. In other cases wipe out with cotton wound around very fine probe or broaches; then apply carbolic acid and again wipe out; the tooth is now ready to be filled, as we claim, permanently by the method we have adopted. Having thus prepared the canals for filling, we now mix a thin solution of the oxy-chloride of zinc, and insert into the canals on a fine broach, several applications and constant pumping with the broach being necessary to force out the air, and before any perceptible amount seems to adhere to the walls; by working the broach up and down innumerable times, gradually force the cement to the foramen, feeling assured that the space between is filled with the thin solution. We now mix our cement a little thicker, and fill the whole pulp chamber; then insert a piece of cotton over the cement, filling up the whole cavity, and press very hard at all points a number of times, thus forcing the cement, which is still soft, well into the canals; then mix our cement much thicker, and, removing the cotton, fill the whole cavity. When hard, dress down and dismiss the patient, preferring to allow this to remain a few months before inserting our permanent filling, as we wish to avoid all unnecessary local inflammation by the mallet-

ing of the gold. Although we have, in isolated cases, finished the whole operation at one sitting, frequently doing so if an amalgam filling is to be inserted, and in a few days finish and polish the filling and the operation is complete. But in all cases prefer to put off the permanent filling to another sitting, as the operation is long enough and the patient tired out by the time the cement filling is finished.

As has been stated, sometimes we are compelled to resort to this treatment from the unsuccessful capping of the pulp or the placing of a conducting filling material too close to the pulp, by which the thermal changes conducted to the pulp cause constant irritation and subsequent death. In such cases, if we find the filling in good condition, and in such a position that its removal will not enable us to work easily at the canals without too much sacrifice of the tooth structure, say on the distal surfaces of the molars or bicuspid, and the approximal surfaces of the incisors and canines, we let remain and open into pulp chamber through the crown of the former and palatine surfaces of the latter and then treat as above.

In cases where the pulp has been long dead, decomposed, pus discharging through canal or abscess at root, it certainly would not do to fill immediately, but only after they are in proper condition, *i.e.*, perfectly clean and sweet, periosteum free from undue inflammation, therefore we must first treat, cure, and then fill.

Having given you our method of treatment, permit me to give you a minute description of a few cases so treated, representing different conditions, and the results. We take those of longest standing, showing time enough for trouble, should any occur.

No. 1.—Mrs. E. H. P. A right superior, central incisor, abscess at root; very troublesome; had been under treatment for months before it came into my hands; first began treatment September 26th, 1876, and up to January 17th, 1877, made numerous attempts to cure by the usual remedies without success, consulted other practitioners and followed their advice, yet no decided improvement, although aided by a fistula. Each time temporary filling was removed would find the cotton saturated with pus or blood and start quite a hemorrhage, giving us trouble to arrest, and if the temporary filling was not frequently removed serious trouble would occur. We then determined upon a new course: thoroughly cleansed, treated and filled as above described, and, as soon as cement set, filled with gold and finished—the opening being on the palatine surface. March 5th, forty-eight days afterward, returned with trouble commencing; opened up fistula and treated through it; April 5th, again so treated; never had any trouble since.

I have not seen this patient professionally for over three years, but on March 13, 1884, I called on her and learned that the tooth has needed no treatment since it was filled other than above noted.

No. 2.—Mrs. M. H. W. Right superior, first molar had been filled

a number of years with an amalgam filling under which the pulp died, abscess formed, a tap hole had been drilled through the mesio-buccal surface, under the gums, which relieved, *but tooth never felt natural, and occasionally very troublesome*. January 28th, 1878, removed the amalgam filling, embracing the whole of crown and mesial surface, found pulp chamber and canal in a filthy condition, very offensive; cleaned, and inserted temporary filling, renewing every few days, and on March 5th, 1878, thoroughly cleaned, treated and filled as above described. Has given no trouble since, and has been more comfortable than it had for years. I saw this patient, March 12th, 1884, and found that there had been no trouble since the tooth was filled six years ago, and is still in good condition.

No. 3—Geo. W. H. Left superior, first molar. Patient came in March 5th, 1878, with large cavity on distal surface and exposure of pulp; applied morphia paste, next day drilled through crown to pulp; applied arsenic; two days afterward removed pulp, treated and filled. This patient was a police officer, consequently exposed to all kinds of inclement weather day and night, yet tooth gave no further trouble. Saw him March 8th, 1884, has had no trouble with tooth since filled, although he has neglected to have it refilled when the temporary filling failed, so tooth has gradually decayed and broken away, yet roots remain intact and comfortable.

No. 4—Mrs. Chas. L. Right superior, first molar; cavity in crown, exposing pulp. April 8th, 1878, applied morphia paste; next day removed and applied arsenic; repeated the latter on the thirteenth; and on the seventeenth, removed pulp, treated and filled; returned on the twentieth with much pain; made application to gums; had no further trouble. This patient was a young married lady nursing a baby but four months old, system depleted, therefore slow to recover and more liable to local inflammation. I saw this patient about a year ago, and she assured me she has had no trouble whatever with that tooth.

No. 5—Miss H. P. Right inferior, first molar—came under our care February 5th, 1878; pulp dead; had been treated and temporarily filled: removed balance of filling, and found that an attempt had been made to open up canals but had penetrated through the mesial surface of the anterior root and through bottom of pulp chamber between the roots, the hemorrhage from the latter giving us considerable trouble to arrest, treated and filled with temporary filling until February 19th, 1878, when filled as above described. No trouble since.

These are but samples of the many cases so treated. Since last meeting, when you requested me to present this paper, I have gone over my books and find recorded among those so treated, in the upper jaw: twenty centrals, fourteen laterals, seven canines, twelve first bicuspid, nineteen second bicuspid, ten first molars, four second molars, three third molars. In the lower jaw: one lateral, four canines, nine first bicuspid, twelve second bicuspid, nine first molars, seven second molars.

two third molars—including a representative of each tooth in the mouth—and have not been informed of any serious trouble from any of them.

I present for your examination, the root of a superior second bicuspid that was so treated and filled February 26th, 1879, and extracted January 6th, 1881, showing no change after two years, the patient experiencing no trouble or discomfort from it since filled and only extracted because she would not have an artificial crown put on, as was intended when filled. I have cut it open, and you will find the cement in good condition and canal filled to foramen.

Having now cited, for your more definite information, five cases representing different conditions and among those first treated, therefore, showing the longest use and comfort, three of them where the pulp had been destroyed for a long while ; one with an abscess at root and had been under treatment for over a year without success, and then the success obtained in two months ; one where a tap hole had been made (the “cure all” for some operators) one where the walls were penetrated in two places, and two where we destroyed the pulp in patients predisposed to give trouble, all treated and filled in the same way, together with one hundred and thirty-three others that we have been able to find recorded on our books ; some, where we have built up large, contour gold fillings. To these may be added the many roots upon which we have placed artificial crowns or pivot teeth, all giving entire satisfaction, and in not one instance have we been called upon to again treat or extract any of them ; and only in isolated cases has treatment been necessary, and then only immediately after filling

So we think we can claim for our treatment it is a success. The advantage claimed is that by properly forcing the thin solution of the oxychloride of zinc to the foramen of the canals you form, as it were, a solid tooth by the setting of that cement, so that there is no foramen or canal into which the fluids can flow or migrate to decompose and give trouble, and no soft filling such as cotton to absorb and hold them for decomposition. But, mark you, we claim it must be “*properly*” done ; we grant that in many cases it cannot be properly done with the instruments obtained from the dental depots, as they cannot furnish them fine enough to penetrate some of the small canals or small openings into the canals. I present for your inspection the broaches I use exclusively. They are imported from Switzerland and are known as watch makers second-hand broaches, used by them in drilling the second-hands of watches, they are finely tempered, and by gradually drawing the temper over a spirit lamp upon a piece of mica, they become pliable and very seldom break ; then you must use a slow setting cement, so as to give you time to work it well into the roots, we have used exclusively Guillois’ Cement, manufactured by the S. S. White Co. ; it sets very slowly and lasts very well ; then great care should be used in working it well into the canals, and you should so arrange to wait on those cases only when you have

plenty of time, as it is an operation that cannot be hurried, and consumes a great deal of time, the length of which you cannot estimate until you are about finished. If these instructions are faithfully carried out, you need have no fear of the result

It has frequently been suggested, as objections to this method : *First*, that you cannot remove your filling. We answer that there is no necessity for the removal, as has been stated that in all the cases we have treated, we have never been called upon to remove the filling, or have ever found it at all necessary to do it.

Second, that we might force the thin solution through the foramen. Our answer to that is, that is what we aim to do, and we are then sure of success ; also, that so you are liable to do with any material you use, whether gold, gutta-percha or cotton, and if you do, the small particles will remain there a constant source of irritation to the surrounding soft tissues, and many a valuable tooth has been lost on that account, but with the cement it is different ; it can be but a small particle, and will become detached from the rest and be easily thrown off or absorbed, or the tissues accommodate themselves to the intrusion on account of the chloride of zinc and your tooth remain perfectly healthy and comfortable, and in those cases where even our fine probes will not enter the canals, and we are unable to remove the small filament of the pulp there enclosed, we let it remain, as the chloride of our mixture will either preserve it in a healthy state as a capping or mummify or embalm it, we care not which, as those cases we have so treated have given us no trouble.

From an experience of over eight years of this method of treating and filling pulpless teeth and the success we have attained, we earnestly recommend it for use in your practice if not already adopted by you, and you will find many troublesome cases relieved.

DISCUSSION.

DR. KINGSBURY. It may be known to some of you who are present, and if not you will pardon my referring to the fact, that as long ago as 1862, at a meeting of the Pennsylvania Association of Dental Surgeons, "The uses of Arsenious Acid in Dentistry" was made the subject of discussion. On that occasion I presented a paper on the subject, prepared with considerable care, embodying a history of the use of this potent agent for the devitalization of the dental pulp, showing that it was first successfully used for this purpose by Dr. J. R. Spooner, of Montreal ; and its discovery, as an efficient and valuable therapeutic agent in dental practice, was first made known to the profession by his brother, Dr. Shearjushub Spooner, of New York, in a small work entitled, "Guide to Sound Teeth," published in 1836. Those of you who may feel a special interest in this subject are referred to Vol. III, page 471, of the *Dental Cosmos*, where you may find many interesting facts, and among them

the original and various other formulæ subsequently used, together with the methods of application by different members of the profession.

I commenced the use of arsenious acid for devitalizing exposed dental pulps as early as 1839, and have used it more or less in my practice ever since. In many cases I have extirpated exposed pulps by instrumentation, as it is usually called, which consists in the heroic operation of instantaneous removal by the use of a fine barbed steel broach. Where this can be done I greatly prefer it to devitalization with arsenic and morphia. The original formula was: Arsenic, 3 parts; Acetate of Morphia, 1 part. That which I used at first, and which has been largely used by the profession, consists of 3 parts Arsenious Acid and 2 parts Sulphate of Morphia, with Creosote sufficient to form a thick creamy paste, the three components being thoroughly triturated in a small wedge-wood mortar. The thirtieth or even the fiftieth part of a grain properly applied to an exposed pulp, and kept in contact with it for twenty-four hours, by carefully sealing the cavity with wax, gutta percha, or cotton moistened with sandarac varnish, so as to exclude all moisture, will be found sufficient in most cases to render its removal from the canal a painless operation. Numerous instances have occurred, some of which I have had the opportunity of observing, where the ignorant or careless use of this preparation, so poisonous and active in its nature, has been followed by most serious consequences. The most competent and experienced cannot be too careful in using agents capable of producing fatal results.

Within the past few years the success that has attended the capping of exposed pulps supersedes, to a great extent, the necessity or propriety of treatment for their devitalization. A tooth with a living, healthy pulp, for obvious reasons, is far more valuable than when deprived of its pulp. Our first and best efforts should therefore be directed to the preservation of the dental pulp. But where the conditions are unfavorable to success, then we must extirpate the pulp and fill the canal. Teeth even without pulps, provided they are properly treated and the canals filled, can be made of priceless value for a long term of years.

The method of filling roots, set forth by the essayist, may be a very good one, and no doubt has proved successful in his case. I have often seen teeth, the roots of which were so filled, that appeared to be doing well. Other cases that came under my observation were not satisfactory. I have never adopted this method in my own practice, for the reason that the one I have practiced for more than twenty-five years has proved so entirely satisfactory. Teeth in which the pulps have died from exposure by caries or other causes, and have become putrescent, require much more careful treatment than teeth where the pulp has been recently devitalized by an escharotic, or extirpated by instrumentation. For some years past, in all those cases with dead pulps and the canals in a fetid condition from the presence of putrefactive matter, I have

first washed out with a syringe and tepid water, cleansing the pulp chamber and canals as thoroughly as possible, then dried out and applied the oil of eucalyptus quite freely, carrying it to the extremities of the canals. This oil acts as an efficient deodorizer, anti-putrescent and detergent; and its limpid, penetrating properties are such that it seems to permeate the dental tissue, neutralizing the morbid septic agents lurking in its delicate tubular recesses and carrying sweetness and health wherever it goes. My experience in the use of the oil of eucalyptus in these cases of dead and putrescent pulps would justify me in saying much in praise of its virtue. After thoroughly cleansing and treating the canal, I pass to its extremity a few fibres of cotton saturated with creosote and wound round the slightly roughened point of a fine steel broach, and pack it closely. I follow this with more cotton of the same kind, packing in the same manner until I have filled the canal one-third or even one-half its length. Unless the root has given rise to abscess, and a fistulous opening through the alveolar process has already been formed, I guard against an excess of creosote on the cotton, and exercise care not to force any portion of it, however minute, through the apical foramen. But where alveolar abscess exists, instead of bad, decidedly good results will in most cases follow the forcing of a small quantity of creosote through the foramen and fistulous opening on the surface of the gum. The passage of the creosote will be marked by its caustic action, causing a white spot to appear upon the gum. Chronic alveolar abscesses of long standing, connected with dead roots, can be successfully treated in this way. Creosote or carbolic acid extirpates the pyogenic cyst and morbid tissue, stimulates healthy granulations; and a radical cure in most cases is effected. Teeth and roots of this class I frequently fill at once, and thus avoid the long and tedious treatment many operators bestow upon them. The therapeutic action of the creosote in the cotton placed in the root goes on until no trace of the abscess, save the cicatrix, can be found. After filling a part of the canal with cotton, saturated with creosote, I fill the balance with gutta percha. Formerly, for many years, I filled the balance of the canal with gold, but I have come to believe that gutta percha is quite as good for this purpose. In reply to those who object to cotton and give preference to gutta percha or oxyphosphate of zinc, on the ground of their more easy and perfect introduction into tortuous and minute canals, and their greater durability, would state that with properly shaped and well tempered instruments, coupled with a fair measure of experience, there is no way in which the canals in the roots of teeth can be more easily, perfectly and satisfactorily filled than in the method I have briefly described. It is doubtless well known to you that the imperishable nature of cotton fibre is a well established scientific fact. When saturated with creosote it undergoes a chemical change, being converted into carbolated lignine, a substance which would, under favorable conditions, resist decomposition or decay

for a period many times greater than the span of man's earthly existence.

Therefore, in view of these facts, and the small percentage of cases which under this method of treatment in my own practice have failed to give satisfaction during the past twenty-five years, you can see the ground of my present confidence in this, over all other methods of treating and filling a class of teeth usually regarded the most difficult and doubtful, not to say hopeless, that come within the scope of modern dental practice.

Dr. STELLWAGEN viewed the question from two standpoints, one where the pulp had been recently devitalized and removed, the other where the death had taken place at a time more or less remote, and the contents of the cavity had undergone changes, disintegration, or even putrefaction.

In the first class the most favorable cases were those where the pulps had been killed instantaneously, and painlessly, as can be effected in straight pulp canals like the oral teeth, by suddenly driving to the apices, delicate wedges of orange wood, so tapered as to fill the cavities and thus obliterate the functions and tissues of the pulps before the nervous shocks can be transmitted to the sensorium.

In this treatment the pulp debris adhere to the wedges and are removed with them in a few moments after they have been driven up.

Wedges of wood, shaped similarly to those withdrawn from the pulp chambers, and saturated with carbolic acid, are immediately inserted as permanent fillings.

The economy of time—the whole operation being completed within from one to three minutes—and the reduction of the danger of injurious foreign substances finding access to the canals, make this method a most excellent one where it can be practiced.

He had given up cotton fillings, not because of any particular fault with them, but he had found the use of gutta percha for roots, as recommended by his friend Professor Litch, more satisfactory and expeditious.

Cleanliness being next to Godliness, he claimed for it greater merit than anything short of nature's living and healthy pulps as a filling for the cavities. To thoroughly accomplish this by washing first with water, then alcohol, and finally with chloroform, was the initial step. Next dry the chamber and canals by passing heated probes up and down within them, using sizes that can be readily introduced. If this has not any other merit than that of thoroughness and dispatch it is quite sufficient, but the destruction of, by burning the parasitic germs, if there should by chance be any within the cavity, would recommend it still more to the dental practitioner.

For filling, where the canals are tortuous, a pink gutta percha trial plate should be prepared by rolling into tapering shapes, corresponding

to the pulp canals, and then being sufficiently warmed to become quite pliable, yet not very sticky, should be inserted and pressed home by blunt probes, while the walls of the canals remain yet warm from the drying process. By this method the gutta percha will adhere to the walls and not to the instruments. Finally, tapering probes, shaped to correspond with the various calibres of the pulp canals, may be heated and pressed into the fillings and cause them to be fitted accurately to the inequalities of the cavities.

To him there seemed to be an objection to using dissolved gutta percha, as the evaporation of the fluid solvent would necessarily leave the cavities imperfectly filled, and liable at all times to give trouble by the leakage of the liquor sanguinis or serum into, and its putrefaction within these spaces.

He had experimented with the oxychloride of zinc for root fillings, and had found it objectionable in several cases from the pain inflicted, probably attributable to the escape of the free chloride through the apical foramen. Furthermore, the cements made from the above and the oxyphosphates, were quite porous, as could be proven by heating a piece that had been worn in the mouth for some time; it would part with odors that would convince not alone a roomful but a houseful of witnesses.

DR. CRYER. My experience has taught me that oxychloride of zinc is one of the least desirable materials for filling root canals. It is desirable that the canals should be so filled as to exclude the ingress of all moisture from the apical foramen, and at the same time be readily reopened in case of future trouble. These conditions can best be attained by the use of gutta percha or cotton. Some roots can be properly filled with gold; some with low heat gutta percha; but there are very few, if any, in which oxychloride of zinc should be used. It is difficult to introduce properly, even where the canal is perfectly clear, and in setting, will shrink to such an extent that moisture will frequently find its way into the canals; it is also one of the most difficult fillings to remove in case the tooth requires treatment in after years.

Any root that can be thoroughly opened up for its whole extent with an instrument may be nicely filled with gold, gutta percha or cotton; but in curved canals this can be most effectually done with cotton.

Natural cotton (not the absorbent), if moistened with oil of cloves or carbolic acid and tightly packed, is impervious to moisture. If a bale of cotton be allowed to remain in the water for months, it will be found dry when opened.

Cotton dressings when removed after years of service, will frequently be found in the same condition as when inserted; but I have never yet removed an oxychloride root filling which was not found to be soft at the upper part of the canal, disintegrated and very offensive.

If oxychloride is admissable at all in filling root canals, it is simply to seal them after the cotton has been introduced. I do not wish it understood that I exclude *everything* but cotton, yet the cases are rare indeed where I do not regard it as best adapted for this purpose.

DR. CHUPEIN said he did not like to use arsenic except as a last resort. He thought it best to make an effort first to save the nerve alive by capping than to devitalize without such effort. Another reason was, that he never made use of arsenic but the patient came back almost immediately after the application howling with pain. This was his almost invariable experience, and he had so stated it at a previous meeting, when Dr. Boice asked him what arsenic he used? He replied the arsenic sold by the S. S. White Dental Manufacturing Company. Dr. Boice had told him if he used such preparation he would always have trouble, as it was unfit for use; and advised him to purchase some of the best and finest preparation of arsenic he could get of any good druggist, and mix it, at the time of use, with a little morphia and creosote, rubbing these up together on a glass slab. He was pleased to testify that he had had, on two or three occasions since our last meeting, to make use of arsenic, and that the applications, made at the suggestions of Dr. Boice, had been attended with the best results and the entire absence of all pain or discomfort to the patient. He nevertheless used it, as stated above, only as a last resort. The removal of dead pulps, the cleansing of roots, and thorough filling of these, was attended with such an amount of labor—often but poorly paid for—that he sought to avoid it; firstly because he regarded the capping the nerve as the better operation of the two; secondly because he thought that as the pulp was the main source of nourishment to the tooth, a tooth with a live pulp in it, fulfilling its functions, was a better tooth than one with a dead pulp, when such nourishment was cut off; and lastly, because his experience with dead teeth, whether from devitalized pulps or where these had died and become putrescent, and where treated and filled, were always doubtful cases, and never such, even when thoroughly operated on, that did not leave the operator with certain misgivings as to subsequent trouble, on the occasion of the patient's taking cold, sleeping in a draught, getting the feet wet, or such like unavoidable circumstances.

As to the filling of roots of pulpless teeth he had always used *cotton*. In putrescent pulps he was not wedded to any one line of practice, but treated sometimes with creosote, creosote and iodine, permanganate of potash, eucalyptus oil and iodoform, etc., etc., etc. Before treating he cleansed out the root as thoroughly as he could, not sparing time nor patience. He drilled out the roots—such as admitted of drilling—with fine drills (the Morey flexible drill), washed out with alcohol, chloroform, or cologne water, then he used the antiseptic treatment: filled the root or roots temporarily, then the crown, and dismissed for a week. If no after trouble ensued he filled the roots

permanently with cotton, but used the precaution to fill the crown with gutta percha, which he permitted to remain *in situ* for six months or more before he resorted to a permanent filling. He almost invariably applied the rubber dam in treating teeth. He thought one could save much time by doing so.

ARE OR ARE NOT DREAMS THE RESULT OF RESIDUAL IMPRESSIONS?

BY L. ASHLEY FAUGHT, D.D.S.

[Read before the Alumni Association of the Philadelphia Dental College, April 1st, 1884.]

The arrangement of the question presented for discussion this evening, places us at a point of view in advance of the earliest theories involving the obvious and impressive element of the mysterious in dream life; and puts forth, for acceptance or rejection, a natural and physical interpretation of the cause of dreams. Thoughtful meditation upon its implied affirmation suggests the possibility that dream operations have a close connection with awake experiences; and indicates that their subtle and complicated phenomena may find explanation in a comprehension of the thought processes and laws distinctly manifested by the nervous system when not asleep. More mature consideration commending the appropriateness of this channel of investigation, it has been chosen for the present study.

As the nervous centres which produce the perfectly normal, vigorous, mental life expressed, when awake, are identical in construction with those yielding dreams during sleep; and as they must in this state act also in accordance with the same fixed laws, it is evident that a conception of their agency in the first relationship, promises an understanding of it in the last, provided the immediate conditions are similar. But as these are unlike, the points of diversity must be mastered to again possess complete knowledge.

This doctrine will readily render an answer to the query, "Are or are not dreams the result of Residual Impressions?" by giving through its application the true cause of the results of cerebral activity while asleep; therefore to this end a brief examination of sleep, and a capitulation of the principles of cerebration when awake will now be made.

Physiological research has established that all the activities of the body are appreciably lowered during sleep, and that the nervous system shares in this general depression. To what extent the nervous centres are rendered inactive has not as yet been positively determined. Psychological theorists seek to settle the question, but present conflicting evidence. Their views support two positions—either a condition of unbroken mental activity, or the opposite—an absolutely dreamless or unconcious sleep. In favor of the first mentioned, reference is made to

the facts, that when one is suddenly aroused from sleep, a state of dreaming is always discovered ; and that it is possible to execute a resolution, made on retiring, to wake at a fixed hour. In opposition to these arguments, and in support of the last mentioned position, is presented the explanations that the dream recalled on awakening had its whole existence in the short period of waking ; and that the anticipation of rising at a set time produced a mental disquietude which rendered the sleeper more susceptible to the rousing influence of external stimuli. Physiology can conceive, without any mystery, of a totally suspended mental activity, but physiological evidence points strongly to a conclusion in perfect harmony with the analogous condition of the other organs during sleep,—that mental activity, however diminished, always retains a minimum degree of intensity.

Every mind born into this world comes in a state of ignorance and receptiveness. Impressions made upon it through the avenues of the senses constitute knowledge. After the first impression through each avenue is *perceived*, all others succeeding become relative—that is, every new sensation, *if attended to*, is met by an instituted comparison between it and something which past experience has bequeathed to the mind. A discrimination and classification is made in this way. We interpret everything by a fusion of the actual sensations of the moment, with a mental representation of a series of sensations of various kinds experienced in the past. It is thus that all elements of an object, such as size, distance, color, length of time, etc., are known to us. The immediate recognition of many important things in reference to an object is indeed due to this reproductive power of the mind, acting independently of its uses for comparison. Thus, at the sight of only a portion of a known object, this capacity will automatically supply the unseen parts and enable recognition. It is further to be noticed that the rapidity of this automatic action will be in proportion to the frequency of its repetition in reference to the same object, in accordance with the organic law that every function is improved by exercise ; or it will be in ratio to the recentness of use in a particular direction, in harmony with the principle that what the mind has lately done it has a tendency to do.

Before proceeding to the immediate study of dreams themselves, it will be in place to note here the manner in which the mind while awake and acting conformably with the teachings of our study, may nevertheless fall into errors. These may often result, and mostly occur, through inattention of the mind to sensations received, as illustrated in a timid man seeing a ghost where a cool-headed person does not ; or through the indistinctness of the sensations themselves, as seen in faint colors being mistaken, and impressions from distant objects becoming confused.

We are now prepared to look at dreaming with the possibility of being able to decide the cause of much that transpires in it. Having seen that during sleep the nervous system is still in a condition to, and

does perform its functions, and wherein the nature of the state is different from being awake, it is plain that the usual external stimuli are not then generally sufficient to cause the commonly expected amount of response; and that, too, the liability to erroneous interpretation still continues, largely increased. This decreased response may be, and usually is, quite changed in character, becoming incorporated into dreams. The avenue of vision is open to impressions of light, even through closed eyelids; and the senses of smell and taste play a lesser part, usually becoming transformed into visual impressions; while the contract of objects with the tractile organs is one of the best recognized causes of dreams. In close connection are the stimuli of muscular movement, with which all are familiar. Passing from the action of stimuli from without, we turn to those from within. Foremost as a starting point for dreams will often be the changes which occur in the circulation of the blood. Variations of its pressure in the retina causing the sensation of light and of bright objects; and though auditory sensations less often produce dreams, still the rushing sound of the nutrient current in the ear will make them. Differences in the state of tension of the skin, exposure of a part of the body through loss of bed-clothes, sensations which arise with the condition of the bodily organs, oppressed respiration, alterations in secretion, indigestion, and incipient disease, etc., may all start the activity of the brain, which will then, of course, fabricate in large measure as when awake. Thus it is seen that the common idea that dreams are built up out of purely passive sensations of sight and hearing; or that they are the result of residual impressions, is very largely a gross error. There excitants are more truly the result of organic feelings received through the sympathetic nervous system; and the greater quantity of our dream material comes from within and not from without the organism. During our awake life these are, as a rule, kept in the back ground by the more powerful external stimuli, which then constantly occupy the mind's attention; but when asleep and the external avenues largely closed, they assume prominence and distinctness. The interpretation of these sensations by the imagination of the dreamer takes different forms in accordance with the character, temperament, ruling emotion, etc. The failure to properly refer them seems due to the lowered state of the nervous system, and the consequent lack of the power of attention. Dreams are uniformly exaggerations, because the condition of the mind does not allow it to recognize and class the nature of the sensation, by comparison with known standards to correct error as when awake. Many dreams too are the result of direct brain stimulation, that is—the brain, by excessive activity in some particular direction just previous to sleeping, may become predisposed to excitement during sleep, and continue the line of thought.

It is needless for me to prolong discussion of the subject, as it is evident that the conclusion from our study is, that dreams are simply illu-

sions of natural, healthful life; dependent, so to speak, upon a momentary deterioration of intellectual life, and just so far are in line with insanity. As expressed by Kant, "The madman is a dreamer awake."

DENTAL SOCIETIES.

The Dental Society of the State of New York will meet at Albany, Wednesday and Thursday, May 14th and 15th, 1884.

The Board of Censors will meet at the same place, Tuesday, May 13th, and examine candidates for the degree of "M. D. S." Information in regard to the requirements of the Board may be had by those interested, by addressing Dr. Frank French, Rochester, N. Y.

J. EDW. LINE, *Secretary*,
Rochester, N. Y.

The Mad River Valley Dental Society will hold its annual meeting in the parlor of the Phillips House, Dayton, Tuesday, May 20th 1884. Sessions will begin at 10 o'clock, A. M., 2 and 7 P. M.

Subjects for discussion: 1. The Value of Pulpless Teeth and Roots. 2. Inflammation. 3. Alveolar Abscess. 4. The Promotion of Osseous Development. 5. Facial Neuralgia.

W. H. SILLETO, *Secretary*,
Xenia, Ohio.

The Twentieth Annual Meeting of the Illinois State Dental Society will be held in the Senate Chamber, Springfield, commencing Tuesday, May 13th, 1884, and continuing four days. The State Board of Dental Examiners will meet at 10 o'clock on Monday, May 12th, at the State House, at which time all candidates for examination must be present.

J. W. WASSALL, *Secretary*,
Chicago.

UNIVERSITY OF MARYLAND.—DENTAL DEPARTMENT.

The Annual commencement of this Department in connection with the 77th of the University, was held March 14th, 1884, at the Academy of Music, Baltimore. After the reading of the mandamus, the names of the graduates were announced by the Dean, Prof. F. J. S. Gorgas, M.D., D.D.S.

The degree of "Doctor of Dental Surgery" was conferred upon the following gentlemen by Hon. T. Teackle Wallis, L.L.D., Prevost of the University:

Theodore W. Albright, New York ; James B. Bigham, South Carolina ; Charles B. Blubaugh, M. D., W. Virginia ; Wilbur C. Biessler, Pennsylvania ; Henry H. Boswell, Maryland ; John H. Brown, Ohio ; George Buttler, Jr., New Jersey ; John M. Comegys, Tennessee ; George V. Copp, Virginia ; Almond J. Cutting, Massachusetts ; Isaac H. Davis, Maryland ; Watson E. Dorchester, New York ; Richard D. Evans, S. Wales, G. B. ; Claus Henry Filter, Germany ; Nathan E. Foote, New York ; Frank C. Gallup, Connecticut ; James Edwin Harris, Maryland ; S. Dwight Hodge, Vermont ; R. Dallas Kibler, Virginia ; Wiley S. Killingsworth, South Carolina ; Chas. J. Ladson, District of Columbia ; Clarence E. Lemley, Virginia ; William Edward Lewis, Florida ; Job B. Mallott, Pennsylvania ; Charles H. McDowell, North Carolina ; Semoney J. Minghini, West Virginia ; S. Latimer Phillips, Virginia ; George Edward Purnell, Maryland ; Nelson T. Shields, Texas ; A. La Fayette Stratford, North Carolina ; Reading B. Swindell, North Carolina ; John E. Taggart, Vermont ; Robert R. Vaughan, Missouri ; Richard van der Hoppe, Austria ; Joseph T. Wayman, Virginia ; Elmer J. Wisherd, Maryland.

The Valedictory address was delivered by Hon. J. Randolph Tucker, Member of Congress from Virginia.

The number of Matriculates for Session of 1883-84, was 86, all of whom were purely dental students.

EDITORIAL.

ALUMNI ASSOCIATION OF THE PHILADELPHIA DENTAL COLLEGE.

We are happy to record the unqualified success of the first monthly meeting of this Association, which was held at the College Building, April 1st, 1884.

The President, Dr. J. E. Garretson, in the chair. The discussion of the subject, "Are or are not dreams the result of residual impressions?" was opened by an interesting paper from Dr. L. Ashley Faught and was generally participated in by most of the members present.

It was a novel experience for us to be present at a meeting of dentists where other than purely professional matters were discussed, and, on the whole, it was a delightful one. We came away rested and *refreshed* instead of wearied and bored as has sometimes been the case after listening to a discussion of some time honored and *time worn* subject which brought to the surface nothing but what had been there scores of times before.

Recognizing that there is much for the dentist to learn outside the boundaries of his every day professional life, and that there is ample

opportunity for the discussion of dental matters in societies organized for that special purpose, the members of this Association have resolved upon a "new departure," hoping thereby to broaden the field of information and to deflect the mind, occasionally, from the treadmill occupation of following professional ruts; and, so far as we may judge, from the first experiment, they have shown wisdom in their decision.

While dental topics will not be *excluded*, a preference will be given such scientific, literary and social matters as are not ordinarily considered a part and parcel of dentistry. The subject to be considered at the next meeting, which will be held on the first Tuesday evening in May, will be Shakespeare's play "As You Like It."

Members of the Association who reside at a distance, or who are unable to attend the meetings are cordially invited to forward papers within the scope of the above-mentioned subjects, and they will be presented to the Association at the earliest opportunity.

Address all communications to

CHAS. E. PIKE, *Secretary*,

1415 Walnut Street, Philadelphia, Pa.

BOOKS AND PAMPHLETS.

A MEMORIAL MEETING RELATIVE TO THE DEATH OF PROF. THOMAS L. BUCKINGHAM.

An account, in pamphlet form, of the meeting held under the auspices of the dental societies of Philadelphia, in honor of the late Prof. Buckingham.

Besides a most excellent photo-type likeness of the deceased, it contains letters from many prominent members of the profession who were unable to attend, a copy of the resolutions adopted by the meeting, and the remarks made by those present.

It is a fitting tribute to one who was "a good and faithful man among us," and has been issued by the committee having the organization of the meeting in charge, at a price barely covering the cost of publication. It can be had of the S. S. White Dental Manufacturing Co. for 25 cents.

THE ARCHIVES OF DENTISTRY.

When announcing the suspension of the *Missouri Dental Journal*, some months ago, we expressed the hope that ere long we should see it among our exchanges again. This hope has been realized; only the old publication appears under a new name—"The Archives of Dentistry." It is a good name, and appears to be in excellent hands, although the list of its editors has not yet been made public.

Judging from the first number, we have every reason to believe it will be, in all respects, a *first-class* dental journal. We wish it a generous support and abundant success.

It is published by J. H. Chambers & Co., St. Louis, Mo.

Subscription price, \$2.00 for 1884, and \$3.00 per year thereafter.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY FOR 1883.

J. W. WASSALL, *Secretary*,

103 State Street, Chicago.

TRANSACTIONS OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

DR. J. EDWARD LINE, *Secretary*,

Rochester, N. Y.

THE DENTAL REVIEW; *A Compilation of Condensed News for Dentists*. Issued on the 15th of every month by W. G. ASHTON
Charlotte, Mich. \$1.00 per year.

In the first number of this new publication we notice four selections from THE DENTAL PRACTITIONER, only two of which are properly credited.

Of course, we cannot do otherwise than commend the wisdom displayed by the editor in making his selections, yet we would suggest that while he *compiles*, he should also *comply*, with the rule adopted by all good editors to "give the d——l his due."

He also seems to take exceptions to the mention of a certain useful appliance which occurs in one of the articles referred to, inserting in the place of the firm's name which manufactures it, the words "[advertising, 25 cents a line]." We will state that the publisher of THE DENTAL PRACTITIONER is not so selfish, nor its editor so timid, that they shrink from mentioning any appliance which may prove useful to the profession, even though they may have no pecuniary interest in it.

Shake, Brother! we heartily wish you well.

A subscriber wants to know what is meant by a "false prophet." It is a dividend declared on watered stock.

When a Cottage Hill little girl was taken to a dentist to have a tooth extracted, she noticed that her mother referred to the operation as "pulling," and the dentist as "extracting," and she, fearing a double torture, inquired plaintively of the dentist, "Shall I have to have to have my tooth extracted after it is pulled."

THE QUERIST.

In the March number of the DENTAL PRACTITIONER, "*Doubtful*" describes his treatment of an incisor fractured from the alveola border on the labial surface, extending obliquely backwards to a line above the border on the palatine surface, and asks, "Has any one had a similar case, and what are the chances of success?"

The crown of course had not been dislodged, as the pulp remained intact, and without inflammation supervening; nor could the pericemental membrane have been seriously lacerated. As he says, there was *slight* inflammation of the gum.

While the *exact* counterpart of the above has not been under my care, yet one so near it that the same treatment was required, and the same results should be anticipated. Two conditions are always essential to the reunion of a fractured root: *First*, the vascular tissues from which the denser ones procure their nutrition, and upon which they are dependent for their recuperative power, must be normally vital; *Second*, absolute rest and near juxtaposition of the fractured parts. These having been secured, there is no reason under favorable conditions why, within from four to six weeks, secondary tissue, both dental and cemental, will not be developed sufficiently to produce quite a firm union.

The unfavorable condition in the case described by "*Doubtful*," is the location of the fracture so near the crown, which makes it so much more difficult to obtain the desired fixedness of the parts; but if this has been secured, and the tissues have maintained their normally healthy condition, the appliance kept firmly in position for a month, or a little longer preferable, and the lad not over fourteen years of age and in vigorous health, the chances of success are good.

C. N. P.

We have received several more replies to "A. Bore" in reference to mending broken engine-cables, but they all recommended the same process as was described in the March number. George C. Ainsworth, D.D.S., Boston, sends a finely executed "sample mend," which seems to be as strong as any other part of the cable, and illustrates the practicability of the method advised.

Will some one please tell me the best method of destroying the pulps in deciduous teeth; also the best method of filling them after this is done, or when we find them already in a pulpless condition?

D. CID.

Mr. Vanderbilt has an annual income of \$12,000,000, yet a toothache hurts him as bad as if he didn't have a nickel.

THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

VOL. 2.

PHILADELPHIA, MAY 15, 1884.

No. 5.

IODOFORM.

"Iodoform in Dental Surgery," by C. F. W. Bodecker, D.D.S., D.M.D., is the title of a paper reprinted from the *INDEPENDENT PRACTITIONER* of March and April, 1884. This essay I have read and re-read with pleasure, its influence being to bring more prominently before the profession an agent, the properties of which are as yet slightly appreciated.

The author, after devoting several paragraphs to the discovery, appearance, preparations, toxic influence and value of Iodoform says: "As a remedy in chronic pulpitis, a capping for exposed pulps, a dressing in oral surgery, and in some instances a preventive against an acute alveolar abscess, we possess no drug which, in its action, is as certain as Iodoform. Every dental practitioner knows how annoying it is to see patients with an acute alveolar abscess, especially when this occurs in teeth, the pulps of which have been dead for some time, and which, previous to the opening of the pulp chamber, had given no trouble. I know of no remedy which will prevent this as surely as the saturated solution of Iodoform in ether, when used in the proper way. In some instances we can open the chamber of a pulpless tooth, which usually contains a great deal of septic matter, clean it out, fill it at once, and no trouble whatever will arise. In these cases the end of the root is encysted, and any kind of filling material, or even no filling at all, will answer the purpose. In other instances, however, when the pulp canal in the end of the root is open, and no encystment present around the apex, an acute alveolar abscess in the majority of instances follows the opening of the pulp chamber, even if no attempt has been made to enter the pulp canal with an instrument. The formation of an alveolar abscess in these instances, I believe, is due to the entrance of air into the pulp canal. I have for nearly three years been very successful in such cases, and a number of my professional friends who have pursued the same line of treatment have met with similar results. My proceeding is as follows:"

“I drill a hole into the tooth or filling toward the pulp chamber, until it very nearly reaches it. I fill this drill hole with a saturate solution of Iodoform in ether (about 1 drachm of Iodoform to 1 ounce of sulphuric ether), and very quickly, before the ether is evaporated, pierce the remaining septum of the pulp chamber. I then fill the pulp chamber loosely with a piece of cotton saturated with the Iodoform solution, and temporarily seal it. This plug I allow to remain from three to five days before I attempt to clean out either the pulp chamber or the root canal. After this time has elapsed, I remove the temporary plug, together with the cotton, make the pulp canal accessible, and as straight as possible, without interfering with the strength of the tooth. I then clean out the pulp chamber, at the same time cutting away all superfluous dentine, and thoroughly rinse it out with water. I apply the rubber dam, dry the cavity, and if the canals are accessible, I at once proceed to clean and fill them, in the manner to be mentioned hereafter. If, however, the tooth presents any inaccessible, narrow or curved canals, such as we meet with in the buccal roots of upper molars and first bicusps, the mesial roots of lower molars, and most of the roots of wisdom teeth, I introduce one or two drops of an aqueous solution of chloride of zinc (about forty grains to the ounce of water), and temporarily seal the cavity with a mixture of gutta percha and wax for about twenty-four hours. When I see the patient again, before I remove the temporary plug, in order to exclude the entrance of the saliva into the canals, I apply the rubber dam. Then I remove the temporary filling, apply a few drops of absolute alcohol, dry the cavity out again, and moisten it with the solution of Iodoform in ether. Now I begin to clean out the pulp canals, either with Donaldson's nerve extractors, a smooth nerve broach, the temper of which has been previously drawn, a Gate's drill, or any other suitable instrument. When the canals are as clean as I can get them with instruments, I again wash them out with absolute alcohol and dry them by means of a non-barbed pivot broach, around which I wind a few fibres of cotton, which I repeat until the cotton comes out of the canal perfectly dry and clean. I then again apply a drop or two of the saturated solution of Iodoform in ether, and quickly pump it into the canal. The next step is the introduction of the filling into the root canal. The method of introducing the filling is as follows: To an ounce of a rather thin solution of gutta percha in chloroform I add about one drachm of powdered Iodoform; of this solution I introduce one or two drops into the pulp canal, and with a smooth broach force it up into the apex. This solution is succeeded by very thin pieces of previously warmed gutta percha, which by means of a little thicker instrument are forced into the pulp canal until it is completely filled. If the foramen in the end of the root is somewhat large, I saturate a piece of cotton, wound around a smooth nerve broach, with the solution of Iodoform; let the ether evaporate; dip it into the solu-

tion of gutta percha, and force it into the pulp canal, up to the apex of the root, and follow this by small thin pieces of warmed gutta percha. If the opening in the end of the root is as large as the canal, I make a shoulder as near to the apex as possible, by enlarging the pulp canal, which in a straight accessible root can be done safely as follows: The exact length of the tooth I obtain with a thin Donaldson's nerve bristle, on the end of which is a very fine hook; around this instrument I wind a few fibres of cotton, about as far from the hook end as I expect the tooth to be long; I pass this instrument into and through the pulp canal, and let the little hook take hold upon the apex of the root. I then adjust the cotton in exact length with the cutting edge of the tooth, withdraw this instrument, and mark the length of the tooth upon a thin bud-shaped or round burr, with which I enlarge the pulp canal up to about one sixty-fourth of an inch from the end of the root. I then fill the root in the same manner as before described."

The formula for a paste which the author recommends for capping, is

R Iodoform pulv.,
 Kaolin pulv., aa 4.00,
 Acid. carbol. cryst., . . . 0.50.

This, like most of the formulas which have been published, puts a clay or other foreign substance into the Iodoform. In this I am unable to see the necessity or advantage. For more than a year it has been in constant use in my office as a paste, made by rubbing with the Iodoform crystals equal parts of oil of cloves and eucalyptic oil until a desirable consistency is obtained; prepared in this way I have used it for every purpose described above by the author, and as an antiseptic and local anæsthetic it has proved invaluable. In view of the great service which this agent has enabled me to render my patients, I welcome any essay which treats in any manner of either its compounds or its properties, and for the various uses to which it is adapted I think every dental practitioner will be compensated for giving it a fair and impartial trial.

C. N. P.

ON THE DISPOSITION OF TIME AND ITS RELATION TO FEES.

BY A. W. HARLAN, D.D.S., CHICAGO, ILL.

The disposition of time by allotment to patients is, especially to a young dentist, very easy of accomplishment; but a time arrives in his history, if he has attained the practice which always comes to the earnest student and industrious worker, when it sadly perplexes him, and unless he is unusually methodical, he is apt to undertake a great many operations without much thought that one appointment may be so limited that he will be free for undertaking the next. This is a question which has

given me no little concern, and the only reason I have chosen it for my theme has been to get a free and full interchange of views from gentlemen, many of whom are my seniors in age and experience, that in future I may be enabled to extricate myself from some of the dilemmas in which want of time may involve any of us.

Operating, as I have done for years, a certain number of hours daily at the chair, I am forced to a personal study of this subject. I have not gained much information from my brethren as to how they conduct a practice; so I have adopted my present method from necessity. My day usually begins at eight-thirty A. M., and I have found from long experience that as a rule it is best to have a male patient to commence with, and an appointment of one hour to one hour and a half is generally made. It is devoted to the preparation of cavities, cleaning teeth, or the removal of a pulp, or filling a root, and the insertion of the simpler kinds of fillings. It may be for the fitting of an artificial crown, or its adjustment. I do not at this early hour begin a large contour filling; first, because it frequently happens that persons who have broken a tooth, or who have the toothache, are liable to come in early, and they need a little temporary attention. Secondly, if they do, you can arrest your early labors by having a chair in an adjacent room, and give the necessary moments which might not be possible were you intensely occupied. Another reason for engaging the first hour or so in the manner indicated, is that in cities it is frequently cloudy or dark so early in the morning, and of course that is a bar to the accomplishment of really fine operations. At nine-thirty A. M., or ten o'clock, the heavy work of the day begins; then the large fillings are started, and the difficult cavities are filled; or it may happen that I wish to fill three or four proximal cavities, operations that require extra good light. This usually requires one and a half to two and a half hours, the average being two hours. The next heavy work is then begun, which consumes the time up to one, or one-thirty P. M.; then lunch; after which perhaps another large filling, or very likely two; if the latter, the time up to four is consumed; if only one filling is made, I then have another appointment at three, for a simple filling or two, or three or four amalgam or tin fillings are inserted. Then I begin to change wedges, to attend to my regulating cases, to treat abscesses, cases of pyorrhœa, finish fillings previously made, and attend to the numerous miscellaneous cases that every dentist of full practice has to see, examine teeth, make temporary fillings, extract a root or tooth, give advice, or write a prescription. Then I charge the labors of the day and make credits for cash received, make out bills and write letters, etc.

This ends the day—in winter at five to five-thirty P. M., and in summer at five-thirty to six P. M. The time is too long, but how to shorten it and meet the demands of an increasing practice, try experiments, study and keep *au courant* with all that is going on in the dental

world, take a peep at current medical literature, attend societies, read papers that one has written, deliver a course of lectures or two, assist in organizing new societies or colleges, take needed recreation, attend to social and home duties, and still earn enough to run the financial wheels and save something besides, is the question. Seriously, to view this matter in any light is discouraging. The only way in which and by which any practitioner with a conscience can long be successful and do justice to his patrons, is to raise his fees. What shall be the basis for fees? I take it that the demand for services in a legitimate practice, by the public, is made by it to the professional man on account of his supposed skill, honesty, and ability to treat successfully the ills which negligence, accident, misfortune or ignorance has made it to suffer.

If the dentist satisfies the public, his patrons, that he does his level best in every instance, they trust him, they flock around him, and overwhelm him with their patronage. The greater number of those who seek the services of a dentist are not the possessors of large incomes. If it were so, in a few years a dentist might retire with a competence. How many have retired in Chicago? People with growing families and the possessors of moderate means are the most constant in their visits to the dentist. Families of large wealth are found in many places of recent origin. Many of them are, from their previous surroundings or education, unable to discriminate between the skilled and the unskilled. They are restive and foolish in their unwillingness to bear with the necessary infliction of pain to treat or fill teeth properly. They are often unwise enough to offer to compensate for services of the most wearing and tedious nature in the spirit of dispensers of charity, or consider that they have done what was perfectly right in offering to pay half the bill for a receipt in full, and you are given the inestimable privilege at that cost of retaining them as your clients, or you are invited to collect through the courts, which is usually a poor way of obtaining one's dues on account of the comparative smallness of the claim.

I think that in disposing of time the most valuable should be allotted to those who appreciate one's labors, and who are willing to compensate for them. If one undertakes a difficult and delicate operation for people not able to compensate in the fullest manner, we are bound to do for those persons the same as though the full compensation had been received.

My plan of allotting time is to parcel it out to patients as far as may be without too great inconvenience, so that the best hours of the day are devoted to the cases needing most care and skill, having some reference to the appreciation of the patient and his willingness to make proper compensation for the service rendered. If I were to estimate the value of time at so many dollars per hour, I should say that an hour from eight-thirty to nine-thirty is worth (according to the demand for time of the operator) about four to six dollars; from nine-thirty to one-

thirty about five to eight dollars; from two to four P. M., about five to seven dollars; and four to five-thirty at three to six dollars per hour. I do not believe in the idea of receiving compensation by the hour, as it is unfair to patient and operator. Regular routine operations generally take up two-thirds of the time of every dentist. If he operates exclusively, he sees more patients daily than the one who spends one-fourth to one-half his time in the prosthetic department; the former, from habit, or application, or increasing dexterity, can make a larger number of operations daily than his brother who is not so constantly occupied. He learns from experience to manage his patients better, so as to expedite matters. He makes no false motions, everything is in readiness to work with, all his materials are at hand, his gold, or tin, or Robinson filling, his gutta-perchas and plastics are all ready to be used. While the operator without system or method is getting his patient seated and his implements ready, the methodical operator has adjusted the dam, prepared a cavity and filled it, received his fee, and is ready for the next patient. System, order, and celerity of motion tell in a long day.

If, on account of your method of managing a patient and the wisdom you acquire in repeatedly doing the same kind of operations, you are able to insert two fillings where your slower brother inserts but one, it is an injustice to you to be paid the same fee for the performance of double duty. I believe, also, that a habit of making rapid operations tends to a greater thoroughness in the vast majority of cases. There is no uncertainty about the how or where of cutting. The operator who wishes to accomplish much has sharp chisels and good excavators, and his burrs are not dull. He spends little time in changing engine bits, because the cavity is well opened before he uses a burr; it is saturated with the obtunder, no matter what, quickly dried, a spoon-shaped instrument is dexterously applied, and presto, the cavity is ready for filling. When a cavity difficult of access and more difficult to fill is met with, even though it be small, if it consumes his vitality rapidly, the operator should make his fee commensurate with the skill required for its successful accomplishment, rather than on the basis of size of cavity or time required for its filling. Skill and knowledge and judgment are the factors to be considered in formulating a tariff of fees, and not time, nor materials, nor a desire to charge so much per diem.

In concluding this paper I desire to say that a patient has some rights which every dentist ought to respect. I do not permit any interruption by callers for appointments, or chance visitors; the only case which comes to me from nine-thirty to four which I stop to see (as a rule), is one of actual suffering. I make it known to patients on my appointment card that they can come at four and take their turn any day, and usually they acquiesce in this arrangement. A practitioner in a large city may lose a few patients at first, but those who make appointments appreciate the fact that they are required to spend only about one-

half or two-thirds the time which they might have spent had the dentist been talking to half a dozen persons during the preparation and filling of a cavity, requiring at the utmost one hour for its completion. Time, to a dentist who has labored to perfect himself in all the details of his practice, is valuable; and he stands in his own light when he thoughtlessly or carelessly consumes it, to his own detriment and against his patients' interests, by endeavoring to make it up, as many are in the habit of doing, by improperly preparing cavities, impacting gold, finishing fillings poorly, or half doing many other important operations not necessary to enumerate, solely on account of a lack of system, method, or business-like habit of disposing of time.—*Independent Practitioner*.

INCIDENT OF PRACTICE.

BY C. E. FRANCIS, D.D.S., N. Y.

Mr. M., a New York merchant about sixty years of age, called some two months ago, complaining that for a long time he had experienced a decidedly unpleasant sensation all about the left side of his face, the gum and roof of his mouth feeling sore, and the soreness extending to the eye, the temple, and the ear. He had a weary and careworn look, was much depressed in spirit, and declared that he felt "miserable." He had for a long time been treated for "chronic catarrh," and was still under treatment, but with no improvement.

Removing a partial artificial denture, the roots of the left bicuspid were discovered in a badly decayed condition. These were extracted, and, through the alveolar openings of the second, considerable pus escaped. A probe introduced penetrated the antrum; tepid water forced into the alveolus brought a quantity of vile-looking pus through the nostrils.

This case received daily treatment for two weeks. Tepid water, seasoned with chloride of sodium, was first injected, followed by carbolyzed water, to which was added a few drops of tinct. calendulæ, and the space kept open with tents of cotton coated with carbolyzed glycerine.* Indications of necrosis being discernible about the alveolar process, acid sulph. arom. was several times applied.

After the second week, treatment was less frequent, and now the case is all right, requiring no further care.

The patient is as well as ever, is bright and happy as possible, looks at least ten years younger, and declares he feels "twenty."

Query. Is dentistry only a mechanical art?—*Independent Practitioner*.

* Carbolyzed Vaseline is perhaps even better.

AN EFFECTIVE APPLIANCE FOR SYMPHYSEAL FRACTURE OF LOWER JAW.

Dr. W. J. Naismith thus writes in the *Lancet*, December 8, 1883:

On July 30 I was called, in consultation with Dr. Hewitt, of Prestwick, to a young lady patient of his, who had sustained a severe carriage accident, having been violently thrown out of a capsizing croydon while taking a sharp turn in the road. There was a condyloid fracture of the left humerus, which was put up in the usual manner; but, in addition, the lower jaw was fractured through the symphysis, the two segments being freely movable, and there was a transverse wound about two inches in length requiring two or three stitches, just over the mental protuberance. The wound did not communicate with the fracture. Now, what we wanted was an appliance for keeping the jaw at rest, which would also permit of free access to the wound for dressing purposes. The ordinary gutta percha or other moulded splints were out of the question—first, because the cutting of such a hole in the splints as would have been necessary for the wound would have practically destroyed its efficiency, and further, we were convinced that the nervous excitable condition of the patient would not tolerate any such weighty apparatus. The lower incisors, broken across and loosened, could not be utilized for ligature, and the neighboring teeth were of such shape as to afford no hold either for silk or wire. A carefully applied four-tailed bandage quite failed to afford the necessary support to the fracture, after a fair trial of about twenty-four hours, the parts evincing much mobility, and the patient complaining of the grating of the broken surfaces. In looking over some India rubber appliances, it struck me that a Hodge's pessary, if bent and adapted so as to comfortably enclose the chin, sufficiently padded by having a long strip of lint about an inch in breadth whipped around it, and retained in position by tapes sewn to its angles and fastened, two over the head and two round the neck, after the manner of the four-tailed bandage, might supply the conditions aimed at—namely, support of the fracture and access to the wound. This idea was carried out, and with such complete success as to seem worthy of record in the columns of the *Lancet*. Grating of the bones and restlessness ceased immediately on adjustment, position was admirably maintained throughout the progress of the case, and free access was ensured to the superficial wound. The "Hodge" to be employed should be of good size, and bent so as to allow the chin to protrude through its ellipse. Thus one bar is moulded so as to support the fracture anteriorly, the other steadies it from below, while the rounded ends afford admirable lateral pressure on each side, at a point in front of the angles of the jaw. To these rounded ends of the pessary the tapes are sewn, two on each side, over the padding (the variety of tape I used was the strong one-inch breadth used with plaster for limb extension by

weights), and these tapes were secured over the head, or to a fillet, and round the neck by small buckles, which readily admit of alterations being made in the firmness of the adjustment. In the absence of buckles, the tapes may be sewed or pinned together till these can be procured. A little cotton wadding inserted here and there under the tapes to obviate any discomfort from pressure, completes the appliance.

For fractures of the inferior maxilla at or near the symphysis, with or without wound, the Hodge's pessary seems well adapted. It can be bent to fit any size of jaw, and in the qualities of comfort, lightness and coolness compares very favorably with the solid cumbrous appliances included under the head of moulds. It is always at hand, easily carried, and does away with all necessity for the labored measurements, cuttings and mouldings incidental to leather, poroplastic or gutta-percha. Cases there are, of course, of this injury which do very well with an ordinary four-tailed bandage or some of its modifications, but that these do not always give satisfaction, the case I have narrated sufficiently proves, and it is well to have a more trustworthy resource to fall back upon. I desire to add, in conclusion, that our case was subsequently seen in consultation by Professor George Buchanan, of Glasgow, who was pleased to express his unqualified approval of the method of treatment adopted. —*Medical and Surgical Reporter.*

THE AMERICAN MEDICAL ASSOCIATION.—SECTION OF ORAL AND DENTAL SURGERY.

The meeting of this society at Washington has been largely attended this year, it being claimed that over thirteen hundred men from all parts of the country had registered as delegates,

The town seemed to be invaded by doctors, and the best hotels were packed until "standing room only" might have been displayed outside the dining rooms. Among so many men you must not be shocked if there were some who forgot their gentler duties amid the dizziness resulting from the novelties to them of the entertainments, scientific and gastronomic, the receptions, the excursions, and the refreshments. But few apartments were sufficiently large to comfortably contain the throngs from everywhere, and an irrepressible desire to get to the front was manifested by many who, no doubt, after experience and time have better schooled them, will be more humane and patient, if not more gentle and genteel. The courtesies and homage to the fair wives, daughters and ladies of the members' families were not overdone; in some cases, indeed, they were doubtless deferred to more convenient, if not more auspicious, opportunities. Alas, all men are human, and some at least who claim the M.D. are not lifted above their less skilled fellows in this world of many callings.

These strong contrasts, however, are the most notable exceptions, and if erudition, culture and perfection of manners do not always entwine in the one character, still, like the three graces, they rarely are pictured except together. A few men of coarse minds and cruder cultivation will always float as scum upon the top, which should be removed if a test of the general merit is to be applied.

The interest in the proceedings was very intense, and the results must necessarily be elevating to the profession as a whole. So important has the healing art become, that a division of the main body into sections seems to have been a necessity, and while this has uncovered many novelties of thought, the plan will yet require much executive ability to keep the powers within proper and profitable limits.

The running of a society of the size of this one, is by necessity only possible with machinery of such strength as to appear, when observed in relation to other societies, cumbersome and heavy. For the better management and smoother play of this machine, rings are largely introduced in its mechanism, and endless chains are not unfrequently formed by a junction of these. With proper application of oil and an occasional touch of plumbago, which is apt to be rubbed off by the unskillful engineers, the noise and friction are kept under subjection. Woe, however, to those who fail to attend these complicated duties. If the journals are heated, they at once show defects in the apparatus, and these are numerous and dangerous; for, the corrections of the faults are apt to involve a change of the engineers, whose only pay is the quenching of their ambition for offices, and the transient publicity that they derive from these positions of honor.

An example of the curious ways in which the general nominating committee performed its duties, was afforded by the Section of Oral and Dental Surgery having a chairman assigned it, who disclaimed all knowledge of the nomination, and upon the Section proposing to take an informal ballot, he made some remarks that were construed to be equivalent to a resignation. For secretary there was given to the same Section one who it is claimed never had been to one of its meetings, and was not even present at this session. "*Sic transit gloria.*" The general association at its final Session passed a resolution, to be adopted as an amendment next year, that each section hereafter propose the names of its own officers to the committee on nominations.

Other Sections were said to be under the management of parties adverse to the prominent members of the societies of specialists, of which there are several besides dentistry. In the latter it was believed by some that hope of election to high places in the American Dental Association was the only reason for the absence of those who would have gladly joined hands in the work there, if not intimidated by the possibility of its depressing the ardor of friends for their nomination in the A. D. A.

What pitiable poverty this petty planning proves, and how puny must be the outlook of the world to those who so preserve their perilous poise while posing as perfect patterns before their fellows. It is a shallow pleasure indeed if such trifles can destroy it. Can it be that the time for the office to seek the man has altogether passed, even among professional men?

The struggle for any advancement, save through honorably acquired ability, is so generally followed by a corresponding downfall, that one cannot but wonder at the blindness of men who would aspire to positions above their abilities to fill. If these defects are so apparent on the level of the floor, how much more conspicuous would they be in the chair of the presiding officer.

There are likewise other serious troubles to be met in the very limited membership which the above mentioned section will admit of, there being but a dozen or so in attendance. Upon the part of these representatives there was a laudable manifestation of a determination "to raise up those who fall, and finally to beat down Satan under our feet." Papers were read that took high grade views of the duties of the dental surgeon as a member of the broad fraternity of the healing art, and the discussions were not lacking in boldness of conception of the proper methods of discharging the functions of this branch. At least this association may become another of the many means of advancement, and its infancy, as yet, should shield it from too harsh criticism or hasty demands for lusty strength.

Hints were freely made as to the doubtful manner in which one of the delegates had obtained the right to be present, and if these were correct it cannot be too soon to expose an error that is by many conceded to be the bane of the dental profession of to-day. Degrees purchased by subscriptions of money to Colleges, or services rendered institutions weak in their powers of attraction to their fonts, will not alone render their possessors open to criticism, but likewise retard, if they do not degrade, the Section's work by the reflection they may arouse as to the shallowness of the channels through which the right of membership may be attained. Perhaps an investigation might at least raise the confidence of some, as to the altitude of the standard required for the privileges of fellowship. So it will not be amiss to hope that these hints may be formulated into charges that will be brought through the proper channels to the association as a committee of the whole.

Agitation may endanger the life of the section, but what is the serving of that compared with the dues to truth and justice? Young trees are mostly benefited by fearless and thorough pruning. Excrescences of an unsightly nature had better be cut away before they disfigure the whole growth, and the wisest of men has given us the rule that to "spare the rod is to spoil the child."

T. C. S.

POISONOUS SLEEP PRODUCERS.

The death of a medical man—Dr. John Middleton, late Surgeon-major in the 2d Life Guards, but at the time of his decease a practitioner at Stockton—will again draw attention to the mischievous and, as we believe, wholly indefensible practice of giving and taking such depressing narcotics as chloral and bromide of potassium as a remedy for sleeplessness. Sleeplessness is always wakefulness in one or more of its multitudinous forms, and the recourse to narcotic poisons for its relief is utterly unscientific and deplorable from a therapeutical point of view. It is as clumsy in theory—in so far as it can be said to have a theory—as knocking a man down because he needs rest. What is it that prevents the natural and physiological rest of the body at rhythmical periods? The brain is as truly a part of the body as the stomach, and it is as much a fault of the organs of the mind to prevent sleep by mental worry or wakefulness, as it is a fault of the stomach to render sleep impossible by bad digestion. No intelligent practitioner dreams of narcotizing the nerves of the gastric organ to promote sleep. Why, in the name of common sense, should any medical man for an instant think it legitimate to narcotize the brain because *it* exhibits some disturbing irregularity in its functions?

Sleep is not a special prerogative of the brain. Every organ sleeps, and general sleep is the aggregate of many sleeps. It is time to protest against this clumsy procedure. If we do so warmly, it is because we feel that the mistake is of common making. It is so much easier to write a prescription, or make up a bottle of medicine, or a box of pills, with one of the rank poisons that mimic sleep, and as they do so deprave cerebral and nerve tissue, than it would be to search out the real and active cause of wakefulness. When will the progress of professional enlightenment reach that point at which all those cloaks for ignorance that depend for their significance on the negative *in* are ostracized from our nomenclature? Dr. Clifford Allbutt has just pleaded forcibly and eloquently for the discarding of that wondrously silly word “indigestion.” Will no spirited scientist help to exorcise the haunting folly that clings to the term “insomnia?” All terms with *in*, negative, imply ignorance on the part of those who frame and use them, and, which is worse, are content with the state of knowledge arrived at, or are too indolent to extend and improve it. Who shall sound the depths or measure the range of the stupendous unknown over which the audacity of a specialty and the apathy of a profession conspire to cast the veil of “insanity?” There are more than a score and a half of *known* causes or forms of sleeplessness, each one requiring direct and specific treatment, and yet, as by common consent, the profession sanctions the abuse of such drugs as chloral and bromide as “poisoned sleep” producers. No medical man is justified in undertaking the treatment of his own maladies. It is impossible that he should so far step out of himself as to be able to

form a reasonable judgment of his case *objectively*; and no practitioner has the justification of science for the recourse to narcotics as remedies for sleeplessness except when an exceptional pain is the accidental disturber of a sleep function, or a habit of wakefulness may be broken by an occasional dose of the stupefier.—*Lancet*.

WHAT VULCANIZED RUBBER DOES.

BY L. P. HASKELL, CHICAGO, ILL.

In the March number the "old story" comes up again, but I notice your correspondent is not on the right track.

Now while there is "mercurial poisoning" from vulcanite plates, which I can demonstrate beyond all peradventure, that is comparatively rare; but the main evil arises from their *non-conductibility*, so that the retention of the heat under the plate constantly inflames the membrane, and not only produces a very uncomfortable feeling in many mouths, but produces most serious results in the undue absorption of the alveolar process, to such an extent that thousands of mouths are ruined for plates, there being nothing left but a flexible ridge of thickened membrane.

If the suction is poor, or the plate is being constantly loosened by a faulty articulation, so that the air circulates under it to some extent, the effect is not so rapid.

Six years ago I visited Boston, where I previously practiced, spending two months, and took occasion to examine the mouths of quite a number of my former patients, whom I had not seen for more than twenty years, and who were wearing plates of gold or platina made by me twenty or twenty-four years previous, and in every instance their gums were in perfect condition, hard and healthy, showing no signs of undue absorption, lower as well as upper.

I was surprised, for all these years, since the introduction of rubber, I had so constantly witnessed its bad effect, in the shape of inflamed, spongy, unduly absorbed gums, I had come to regard it an every-day affair, although in my present practice the mouths wearing metal plates are constantly bearing the same testimony as in the Boston cases. Nearly forty years' exclusive practice in mechanical dentistry has given me abundant opportunity to establish the truth of this theory, which was first brought to the attention of the profession by Dr. W. B. Roberts, of New York, more than twenty years ago, in an article written for the "*People's Dental Journal*," published by myself, in which he uses the following language:

"These effects, as noted in our own experience, and declared by the evidence of many others, were, first, *a great absorption of the alveolar and bony substance of the jaw*; next, irritation of the mucous membrane, and a *condition nearly approaching salivation*; then gastric

irritation, and finally, the general derangement of the health consequent upon such abnormal conditions.

All these symptoms of disease were removed by simply removing their obvious cause, RED VULCANITE; while a healthy condition continued after replacing it with gold, or continuous gums.

One cause of these inflammatory conditions under red, or any color of vulcanite, is the fact that it is a non-conductor of heat, and this cause, as will be apparent to any physiologist, is sufficient to produce the worst results."

I would add, further, that the same results follow the use of celluloid. Such being the facts, what is the duty of the dentist to his patient when being consulted as to what is the best material for plates? To let him remain ignorant of these things, and suffer the results as thousands are doing, or to advise the use of a metal plate? To be sure, there are many who can afford nothing but the rubber, but give all a chance to choose.—*New England Journal of Dentistry.*

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

At a Public Commencement held Thursday, May 1, 1884, at the American Academy of Music, the Degree of Doctor of Dental Surgery was conferred by WILLIAM PEPPER, M.D., LL.D., Provost, upon the following gentlemen, after which an address was delivered by Theodore G. Wormley, M.D., LL.D., Professor of Chemistry and Toxicology:

NAME.	STATE.	SUBJECT OF ESSAY.
Aldcroft, J. Gamwell,	New York.	Exostosis,
Bermudez, Salvador,	Nicaragua.	Odontalgia.
Bowers, Horace A.	New Hampshire.	The Best Means of Preserving the Teeth.
Brown, Wistar P.	Pennsylvania.	Rubber Dam Clamps.
Campbell, Wm. F., M.D.	Pennsylvania.	Abscess of the Antrum.
Davila, Nemecio,	Chili.	Necrosis.
Emmert, John W.	Illinois.	Disease of the Maxillary Sinus.
Entrikin, Joseph B.	Pennsylvania.	Impressions.
Ersikine, Stirling, M.D.	Pennsylvania.	Salivary Calculus.
Gastal, Edmund	Brazil.	Preservative Treatment of the Dental Pulp.
Goettinger, Louis	Germany.	Sequelæ of Caries of the Teeth.
Graves, Luther H.	Pennsylvania.	Gold.
Hert, Benedict S.	New York.	Pulp Canals.
Hiestand, Ira C.	Pennsylvania.	Salivary Calculus.
Jimenez, Generoso A.	Cuba.	Caries of the Teeth.
Loder, James E.	Pennsylvania.	Preparation of Cavities.
McCance, James L.	Pennsylvania.	Necrosis.
McMillan, Saml. J.	Maryland.	Civilization.
Maercklein, Robert	Wisconsin.	Metallic Dies.
Miner, Howard A.	New York.	Extraction.
Munn, Edgar W.	Illinois.	Preservation of the Teeth.

NAME.	STATE.	SUBJECT OF ESSAY.
Noble, Henry B., Jr.	Dist. Columbia.	Impressions.
Provost, Howard G.	Connecticut.	The Fifth and Closely Related Nerves.
Redpath, Philip E.	New York.	Children's Teeth.
Robinson, F. Field	England.	Antrum: its Diseases and Injuries.
Shockley, Abraham L.	Massachusetts.	The Dental Pulp.
Skidmore, Luther W.	Illinois.	Odontalgia.
Stebbins, Leonard S.	Massachusetts.	Impressions.
Stowell, Sidney S.	Massachusetts.	Treatment of Caries.
Swartz, J. Torrence	Dist. Columbia.	Anæsthetics.
Tompkins, Clarence	Pennsylvania.	Dental Hygiene.
Tripler, William C.	Pennsylvania.	Filling Teeth.
Walls, Frank H.	New Jersey.	Lesions of First Dentition.
Watson, D. Stuart	Pennsylvania.	Development of Teeth.

SUMMARY.

Brazil	I	Massachusetts	3
Chili	I	New Hampshire	I
Connecticut	I	New Jersey	I
Cuba	I	New York	4
District of Columbia	2	Nicaragua, C. A.	I
England	I	Pennsylvania	II
Germany	I	Wisconsin	I
Illinois	3		—
Maryland	I		34

Students of second year	41
“ “ first “	47
	—
Total	88

JAMES TRUMAN,
Secretary.

OPTICAL ILLUSIONS.

When the eye is deceived and a person misled by things seeming to be what they are not, it is spoken of as an “optical illusion.” The familiar expression that “seeing is believing” implies that most people trust to their eyes more than to their other senses. “I have seen it with my own eyes” is looked upon as an indisputable, a convincing argument, although there are a few doubting Thomases who would add the testimony of the sense of feeling to that of sight before admitting that a thing is actually so.

The facts in the case are that any one of our senses may mislead us, and will do so unless we unite caution with experience. As sophists use logic to prove the false true, so the ventriloquist by the exercise of his art deceives the ear, and the slight of hand performer cheats our eyes. How is this possible?

Certain rays of light coming from a distant body enter the eye, and produce certain sensations upon the retina, which sensations are reported to the brain through the optic nerve.

The brain interprets the signals by the aid of past experience, and we *think* we have seen the distant object. In fact, we have only received a message from it. If the telegraph operator in Washington strikes his key twice, the New York operator writes down O, but if he strikes it three times the latter writes down S, unless he fails to hear the third tick, or thinks he has heard but two, when he is led into the mistake of writing O where he should write S. The signals when correctly given may be interpreted correctly or incorrectly. So the signals correctly registered on the retina and reported to the brain may be incorrectly translated and interpreted, thus resulting in an error, an illusion.

Place a man and a dog side by side at a distance of 20 feet, and any person with an eye capable of distinguishing them will be able to tell which is on the right, which on the left. The eye is not easily deceived as to position at right angles to the line of vision. Let the man advance 5 feet; it is easy to tell that the dog is farther away than the man. Next, place the man at a distance of 100 feet, the dog at 105 feet; it is not so easily decided as before, although mistakes are rare with a normal eye. But at 500 and 600 feet, respectively, it is less easy, although we can still tell which is to the right and which to the left. The images formed on the retina by the same object at different distances are very similar, differing only in size and distinctness. For this reason it is difficult to judge of distances, requiring much practice. A person standing on a straight strip of railroad is rarely able to tell whether a distant train is approaching, or receding, or at rest, so slight is the change in apparent size from which the distance is to be estimated. Upon the sea it is very difficult, without long practice, to judge of distances.

As a curious instance of inability to judge of distances, and hence of the direction of horizontal motion, may be mentioned that of the governor of a steam engine. At a certain distance (say 50 feet) the eye will seem to see the balls turning in a certain direction, but on next looking at them this motion seems to have changed to the reverse, and after several alternations the mind becomes perplexed, and finally is able to see them turning either way.

An outline drawing of a cube may be made to look like the interior or exterior at will at a certain distance; the real cube may be made to do the same. Shading, perspective, etc., are resorted to by the artist to give the idea of distance.

In the matter of *direction* deception is not so easy as in distance. Our experience tells us that if a person hits us in the back with a ball he is probably *behind*, not in front of us. The object seen lies in the same direction as that from which the light comes when it enters the eye.

If by any means the direction of the ray has been changed between the time when it left the object and the time when it reached the eye, this rule is violated, and deception results. When this change is effected by the reflection, it is attended with more or less loss of light, sometimes with distortion, and a little experience leads one to suspect a reflecting surface. If the mirror is very perfect, the most careful person is liable to be misled. The well-known "ghost" is due to the reflection of a strongly lighted figure from a plate of unsilvered glass. Many of the best tricks, with floating heads and the like, are arranged with mirrors. No illusions are more perfect than those produced with mirrors.

Refraction always changes the apparent place of an object, so that we seem to see the sun after it has gone below the horizon. A more striking but less frequent phenomenon of refraction is that known as *mirage*. Refraction also affects the color of an object.

The media through which light passes has more or less effect upon the ray. In a fog objects are dimly seen, the effect resembling that due to distance, hence objects look larger, for the eye judges of the size of an object by multiplying the size of the image or impression received by the square of the distance, while the latter is estimated from the indistinctness of the object. In the fog the apparent distance is increased, but the eye interprets it as due to the opposite cause.

On looking at the photograph of a tree, a church, a monument, or a pyramid, it is not possible to form a correct idea of its size unless a man or animal is seen in the same view with which to compare it. In nature, especially on land, the intervening objects that lead up to it give the data on which to calculate the distance. Where none intervene, as in looking from peak to peak, the eye must depend on distinctness, and where the air is very clear and transparent, as in Colorado, distances seem less than they are.

If the object is seen through transparent, but colored, media, the form remains true, but the colors are changed.

On looking directly at the loop or curve of an incandescent lamp it is frequently difficult to distinguish its form, the whole loop being radiant and dazzling, while its reflection is so much less brilliant that the form of the carbon is easily discovered. A wire or bar of iron looks much larger when red hot than when cold for the same reason, and a fire at night seems nearer, owing to its brightness, than in the day.

No better proof is needed of the fact that the eye does not and cannot measure distance, but only gives more or less imperfect data from which the mind calculates the distance, than the child's efforts to grasp the moon, and of the dog that bays at that distant luminary which looks so near; nor can any of us, with our naked eye, estimate the relative distances of the sun and stars.

The shape and color of an object are all that the eye alone can report with tolerable accuracy, but by experience we learn to distinguish

the texture of substance, the nature of surfaces, and many other things that belong more properly to the sense of touch. We distinguish satin from velvet and wool from cotton at a glance. The painter's art largely consists in deceiving the eye; in so mixing and blending his pigments that they produce the same impression as stone and wood, or earth and trees, or flesh and blood would do, and the greater his skill, the more perfect the deception. The imitation is rarely so perfect as to deceive the experienced, and yet the pleasure derived from the imitation exceeds that given by the reality, just as misery and suffering, when well depicted on the stage, give pleasure, but the sight of the reality gives pain.

In many things the mind enjoys being deceived, and optical illusions give us pleasure, so much so that those who are capable of completely deceiving this acutest of our senses get well paid for exercising their talents.—H, in *Scientific American*.

SURVIVAL OF USELESS THINGS.

It is not always the fittest that survives. The two little splints in the horse's foot could never be accounted for on the principle that every part of an animal is now as it was from the beginning, and has its uses. They are perfectly useless, but they are the last remains of the toes that were very useful to the ancestors of the horse. The world is full of such useless organs, each replete with historical interest. The muscle that moves the ear in a quadruped is present in man; but, as a rule, he cannot use it, and it would be useless to him if he could. Of what use are the two buttons upon the back of a coat? None; but in the days when it was the mark of a gentleman to carry a sword they served to secure the sword-belt. The articles man makes present on every hand these survivals from previous fashions. Sham laces on boots, buttons down fronts that do not open, buckles on bands that are fixed, neck-wear in the form of ties but secured by other methods, are cases in point. Nature works in the same way that man does; or rather, since man is part of nature, he works by nature's methods. Changes are gradual; one of a series of bones, muscles, teeth, &c., that is used more than the others, increases in bulk, while its neighbors diminish, and perhaps finally disappear. If an animal acquires added powers in one direction because of circumstances that press it in that direction, it loses it in another. It is so with mind also. Do we not know that after long application to one class of subjects—probably the most useful to us—we lose much of what we previously knew?—*Bow Bells*.

POISONING BY WILD PARSNIP.—A case of poisoning occurred in Danville, Pa., recently, where two children died after having eaten the plant. A third child who tasted it was made very sick. In the two fatal cases, convulsions occurred, preceded by violent pain.

OBITUARY.

Died at his residence in Philadelphia, May 6, 1884, Prof. SAMUEL D. GROSS, M.D., LL.D., D.C.L., Oxon., LL.D., Cantab.

Prof. Gross was born near Easton, Pa., July 8, 1805. He was educated at the Classical Academy, Wilkesbarre, Pa., and the High School, Lawrenceville, N. J.; studied medicine under Dr. J. K. Swift, of Easton, and Prof. George McClellan, of Philadelphia, graduating at the Jefferson Medical College in 1828. He practiced his profession in Philadelphia and Easton until 1833, when he was elected Demonstrator of Anatomy in the Medical College of Ohio. Since this time he has labored continuously as teacher and author, until in the fullness of years and honor he was cut down.

As a teacher, he occupied the chair of Professor of Pathological Anatomy in the Medical Department of the College at Cincinnati; Professor of Surgery in the University of Louisville; the same position in the University of New York; again returning to Louisville until in 1856, he was elected to the chair of Surgery in the Jefferson Medical College, with which institution he has ever since been identified.

As an author, he commenced his labors with a translation of several standard French and German medical works; then follow his treatise on "Diseases and Injuries of the Bones and Joints," "The Elements of Pathological Anatomy," "American Medical Biography," "A History of the Progress of American Surgery," "A History of American Medical Literature," and his celebrated "System of Surgery," which is accepted as authority throughout the world.

He was an active and honorary member of many Medical and Scientific societies; founded the Philadelphia Pathological Society, the American Surgical Association, and the American Academy of Surgery. In 1876 he was elected president of the International Medical Congress, and has occupied the same position in many other societies. At the time of his death he was president of the Board of Trustees of the Pennsylvania College of Dental Surgery.

In accordance with the frequently and forcibly expressed wish of Prof. Gross, his remains were cremated; the ceremony taking place at the Le Moyne Crematory, May 8, 1884.

At a special meeting of the Alumni Association of Jefferson Medical College, held May 9, 1884, the following resolutions were adopted:

Dr. Hewson, after calling the meeting to order, referred in fitting terms to the high character of the dead surgeon.

Dr. John G. Brinton, Professor of the Practice of Surgery in the College, expressed his admiration for Professor Gross' great qualities of mind and heart, and said that the esteem in which he was held in this country and in Europe was shown by the honors showered upon him by the leading scientific associations and colleges, and by the conferring

upon him by the University of Edinburgh, of the degree of LL.D., an honor which he shared with Lord Tennyson alone.

Dr. Theophilus Parvin, Professor of Obstetrics in the College, remarked that the influence of Professor Gross' life and work would be felt in America's surgery for many years, and his writings quoted as the opinions of one of the greatest surgeons this country ever produced.

Dr. William H. Pancoast, Professor of Anatomy, spoke feelingly of the late professor, characterizing him as the most illustrious surgeon ever graduated from the College. He suggested the propriety of erecting a monument to his memory in Fairmount Park, or some other conspicuous place, and of establishing a chair of pathology in the College, with which his name should be identified. He offered a resolution providing for the appointment of a committee to confer with the American Medical Association, regarding the first suggestion, which was adopted, and the following Committee appointed:—William H. Pancoast, J. Ewing Mears, Addinell Hewson, Sr., J. M. Da Costa, N. L. Hatfield, Lawrence Turnbull.

Dr. Henry Mullen then offered a resolution for the appointment of a Committee to consider the question of establishing a chair of Pathology in the College, which was adopted and the following appointed:—J. M. Barton, N. L. Hatfield, R. Duglison, J. Solis Cohen.

Resolutions were offered and adopted as follows, and the meeting then adjourned:

WHEREAS, The Alumni Association of the Jefferson Medical College has learned with feelings of heartfelt sorrow and regret of the death of its honored President, Professor Samuel D. Gross.

Resolved, That in his death the Association has lost its most eminent member—one whose constant endeavor it was to promote the best interests of his Alma Mater, to establish throughout the land her reputation as a great school of medicine, and to unite in a bond of common brotherhood her alumni.

Resolved, That, as the most illustrious alumnus of his Alma Mater, he has conferred honor upon his country and his profession as a learned author, a teacher unequalled in his ability to impart instruction, and a practitioner whose comprehensive knowledge and sound judgment distinguished him as the good physician and great surgeon.

Resolved, That he has left an imperishable record of an honorable career, characterized by an indefatigable industry, integrity of purpose, noble ambition, devotion to the elevation of the standard of his profession, and by all that could contribute to greatness of his calling.

Resolved, That distinguished by those amiable qualities of heart, and that genial disposition which endeared him to his fellow-men, we found in him always a kind friend and wise counsellor.

Resolved, That we tender to the bereaved family our deepest sympathy in the great loss they have sustained.

Resolved, That these resolutions be published in the papers and *Medical Journals* of this city, and that a copy be transmitted to the members of his family.

N. L. HATFIELD,
ELLERSLIE WALLACE,
J. EWING MEARS.

EDITORIAL.

A SHORT CHAT WITH BEGINNERS.

Not long ago we had the privilege of examining the mouths of several patients at one of the dental infirmaries. The teeth had recently been put in thorough order by members of the graduating class, and were shown as evidences of proficiency and examples of what these several gentlemen could do in the way of filling teeth.

It was while examining these fillings, and listening to remarks made by others who were looking at them, that the question arose in our minds: "Are these young men starting out with a true conception of what constitutes the *best* DENTIST." While all the fillings were beautiful when considered as the results of mechanical effort, giving evidence of a high order of skill, and much persevering and tiresome labor on the part of the operator (to say nothing of the submissive endurance on the part of the patient), yet many of them gave as unmistakable evidence of mis-directed effort, wasted energy, time and material, and a lack of judgment in selecting *that* material which would best preserve the tooth in each given case, and would give results which might properly be termed the *best* dentistry.

This lack of knowledge will no doubt be supplanted, in the course of time, by that *wisdom* which comes from experience; but, if possible, we would save our young brother many of the heart-aches, blasted hopes, and much of the chagrin which are sure to be his portion, without careful consideration of the question: "With what *material* can I best *preserve* this tooth?"

We are a strong advocate for gold *in its place*—no one admires good gold-work better, or tries harder to do it—but above all we admire good *dentistry*, whether accomplished with gold or some baser material.

There is a tendency among the young men of the profession (and we might include some of the older ones,) to become idolaters; they bow down and worship before a golden image erected upon the decayed and crumbling remains of some ancient molar, and sneer at a more modest but equally conscientious effort which will outlast their idol ten to one. We would say to the younger men when tempted to do this; don't! To the older ones we have nothing to say; if they are not already convinced, we give it up. Use gold or any other material *judiciously*, not *indiscriminately*.

If, in a badly decayed or soft, frail tooth, you can put an amalgam, gutta percha, or phosphate filling in one quarter of the time, at one quarter of the expense, with infinitely less wear and tear to yourself and patient, even though it last no *longer* than gold, you will, in the course of a year's practice, make a *saving* difficult of computation.

Don't imagine you can build yourselves enviable reputations by building hugh masses of gold upon crowns and roots not strong and healthy enough to warrant it; it looks pretty, but it won't last, and your glory will be short lived.

It is of course necessary to be able to put in a good gold filling wherever required, and this may perhaps be in the majority of cases, but this is not *all* that is required. Make a *study* of the various materials and their adaptability to various cases. Good dentistry as much depends upon the proper *selection* of materials as upon their manipulation. The young practitioner usually has plenty of time; therefore, let him not seek to perform his operations hastily, but rather to do them thoroughly and well. Five minutes extra time spent upon the edges of the cavity, and in finishing the filling will frequently add that number of years to its durability. As the years go by and he finds his practice increasing, he will also find himself acquiring such a degree of proficiency that he may well afford to consider how to do the same things in a shorter space of time—never for a moment forgetting to perform each step as thoroughly, and keeping constantly in view his high ideal standard.

Do your level best with the very first operation you undertake; try to make the next one a little better, and so on *ad infinitum*. The young man with ordinary ability, who makes "*thoroughness*" his watchword, is bound to make his mark in the professional field, as well as in the community he serves.

Much time may be gained, and much discomfort and annoyance avoided, by having every instrument in perfect order. No dentist has the right to inflict the needless pain caused by a dull excavator, and no one in full practice can afford the loss of time which the use of such instruments entails.

In selecting instruments get the best, and then see to it that they are always in condition for performing the office for which they were designed. In this connection we cannot too highly recommend the stoned burrs for use with the dental engine. Their cost is somewhat more than the ordinary burrs, but this is more than counter-balanced by the rapidity and smoothness with which they do the work. Anything that will enhance your patients' comfort (or rather lessen his *discomfort*), will be found to be a good investment.

Don't buy a lot of appliances because they look pretty, or to gratify an idea that they might impress your patients with your wonderful ability in being able to use them. Choose each with a view to its practical *usefulness*, and you will be astonished with what few instruments good work can be accomplished, when compared with the profuse and glittering array to be found at the manufacturers.

The stronger a man's breath the less can he look to it for support.

IS HE RIGHT?

The May number of *The New England Journal of Dentistry* contains a review of Dr. Garretson's "SYSTEM OF ORAL SURGERY," by "M.," in which we find the following:

"We are sorry to see such an illustrious man as Dr. Garretson speaking of the "vice of syphilis;" to him it is not a vice, but a disease, and whether it is vice or not, depends on the peculiar church views he adheres to. The term vice is so arbitrary, and depends so much on the standard we take, that a man of Dr. Garretson's standing certainly used this term only by a slip of the pen. Not the syphilis itself is the vice, but some of the doings which propogate the disease. The term "vice" includes too much of that "holier than you" pharisaism. If a child has syphilis, it only has a disease for *Dr.* Garretson, and not at all a vice, what it might be for *Rev.* Garretson, unless we believe also in medical original sin. One might just as well speak of the vice of peritonitis, because occasionally a crime may be connected with an act that brought about peritonitis; but Dr. Garretson commits an evident confusion of cause and effect when speaking of the vice of syphilis. Many persons have syphilis without having any "vice" connected with it. If there is a "vice of syphilis," then there is also a vice of scrofula, a vice of nervousness, a vice of caries, etc., for more or less all these may be connected with criminal acts."

We think "M." is very much at fault in putting the construction upon the word "vice" which he does when used in the manner referred to. Dr. Garretson was looking at his subject from purely a *physical* standpoint, and the use of the word in this connection was perfectly proper, conveying the idea of a physical defect, blemish or imperfection. "M." should remember he is not reading a sermon, or a lecture on *morals*. We think, after carefully examining the context and consulting his dictionary, he will agree with us that the author cannot be censured when he uses the word to represent an "infirmity" or "weakness of the flesh."

We fully coincide with "M." when he says:

"Every one dislikes to see a man, whom he otherwise deeply respects, in a certain small point illogical and weak; it detracts somewhat from the enjoyment in the man, and mars the favorable impression we get of him otherwise."

A NOVELTY THAT IS A NOVELTY.

"The latest novelty in dentistry," says the *Boston Journal*, "is teeth-shaping, or denticulation, as it is called. By means of a liquid application the teeth are softened and pressed into the desired shape." Won't some of our brethern at the "Hub" explain? We have often looked to the "east" for "light;"—turn on the electric!

THE QUERIST.

Reply to "D. Cid."

Exposed pulps in deciduous teeth may be devitalized either by a number of applications of carbolic acid, or by one application of a minute quantity of nerve paste (arsenious acid, creosote and sulphate of morphia) well protected. If the latter is used, it should not be left in the tooth longer than from six to twelve hours.

After devitalization the pulp should be gently removed, and a capping of metal or resisting material placed over the pulp chamber in the tooth, and the cavity permanently filled with oxy-phosphate or amalgam.

After this there should be a small tap-hole drilled from the outside into the pulp canal at the neck, just under the free margin of the gum. This acts as a vent in case of future trouble, and if it become accidentally clogged by food, can easily be opened by parent with a fine wire or needle.

This treatment generally succeeds in making the tooth comfortable as long as it is retained in the jaw. It would not be good treatment, however, for a permanent tooth. The majority of good operators never fill the pulp canal in a deciduous tooth, as the tooth will last long enough and be comfortable without it.

If the pulp has become devitalized before, remove it and proceed as above.

G.

In the March number we gave an account of a tooth with fractured root, and stated our method of treatment. To our inquiry as to the probable success, Prof. C. N. Peirce very kindly replied (see April number): The conditions which he mentions as being essential had been secured and it gives us pleasure to announce that his prognosis was correct.

The appliance for retaining the fractured parts in close juxtaposition had remained firmly in place for about ten weeks, when the lad came to the office stating that it had become loose and fallen off. With feelings partaking of hope and fear we hastened to examine what we had considered a "*doubtful*" case. Imagine our delight upon finding that there was no further need for the appliance, the tooth appearing in all respects as solid and healthy as its mate. Of course no great amount of force was applied, but sufficient to convince us that the union was complete.

We are glad to record the successful termination of this case, trusting that others, when called upon to treat a tooth in a similar condition, may "be not too hasty to condemn, but ever ready to"—*give the tooth a chance.*

[ED.]

THE Dental Practitioner.

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DEVELOPMENT OF ENAMEL SIMILAR TO OTHER EPIDERMOID STRUCTURES.

BY M. H. CRYER, M. D., D. D. S.

[Read before the Odontographic Society of Pennsylvania, June, 1884.]

It would be temerity in me to dispute a theory held by all Histologists, and invite the criticism of the scientific members of the dental profession, by announcing that the outer part of the enamel of the teeth is the first to be formed, and the portion next the dentine the last, did I not feel that I can demonstrate the absolute impregnability of my position.

The present theory is, that the enamel is first enamelified at the union of the dentine and the enamel, and that calcification commences at that point and grows outwardly, layer upon layer, as a brick-mason would lay brick upon brick. In other words, that the enamel cell, tube-like, grows outwardly, and the salts of calcium are deposited at the bottom, and continue to be deposited, layer upon layer, until completed. Thus the outer part of the enamel, or that part first erupted, is the last to be formed.

But, before proceeding further, it will be advantageous to review the theory at present accepted as to from what tissue the tooth-germ is developed.

In the first place, the whole body develops from a blastoderm, which blastoderm first divides into two, then into four, then into eight, sixteen, thirty-two, etc., etc., until the mulberry mass is formed. This mass of cells then arrange themselves into three layers, named respectively the epiblastic, mesoblastic and hypoblastic layers. From the epiblastic, or upper layer, are formed the brain, the nerves, the epiderm and all its appendages, such as the hair, the nails, the hoofs and horns of the ox, *and the enamel of the teeth*. From the mesoblastic, or middle layer are formed the blood-vessels, the bones, the muscles, the true derm, and the dentine and cementum of the teeth. From the hypo-

blastic, or lower layer, are formed the epithelium of the mucous membrane, and the various glands of the alimentary canal.

Certain laws govern the various tissues and organs formed from these layers, and these laws are not deviated from (excepting in disease) any more than the laws governing the planetary system; and a cell once developed is regulated by these laws until it has performed its function, dies, and is cast off. There can be no such thing as a return of a cell, after it has reached its maturity, to an embryonal state, as announced by Prof. Heitzman, of New York. Such action would be to reverse every law of nature.

The tissues which are formed from the mesoblastic layer, comprising as they do the greater part of the body, are built layer upon layer, as is aptly illustrated in the growth of bone. Bones (excepting a few in the cranium, which are membranous, but built layer upon layer, precisely similar to cartilaginous bone) are formed from cartilage by an osseous deposit being made in the centre, which increases outwardly, layer upon layer, until the cartilage has become ossified. The periosteum then deposits membranous bone upon it through its osteoblasts.

The other two layers, the epiblastic and the hypoblastic, differ wholly and entirely from this. There is a so-called basement membrane which is found all over the surface of the body, the alimentary canal—in fact it is more than likely it exists everywhere—between the tissues formed from the mesoblastic layer and those formed from the other two layers. The epiblastic layer forms the epiderm, which covers all the body, and passes into some of its external openings until it meets the epithelium of the mucous membrane, which is formed from the hypoblastic layer; indeed, it extends into the oral cavity as far as the palatoglossal fold.

Fig. 1 is a diagram of the skin. It is divided into different strata or layers. The first natural or embryonic division is made through its development into two layers. The upper division is formed from the ectoderm or epiblast, and the lower division is formed from the mesoblast, the basement membrane, being situated between them. The upper division is known by several names, the cuticle, epidermis, etc., etc., the latter being, I think, much the best name. The epidermis is again divided into several layers.

*“The most superficial is the *stratum corneum*, composed of numerous horny cells forming a comparatively thick layer of stratified Squamous Epithelium, and immediately below this a narrow, somewhat homogeneous band, the *stratum lucidum* of Schron. Beneath this there is a narrow layer of spindle-shaped granular looking cells called the *granular layer* or *layer of Langerhans*, and the remainder of the epidermis, which lies between this and the corium, forms the *Stratum Malpighii*, or rete mucosum.

* From Cole's Microscopic Science.

The *papillary layer* of the corium may be seen closely opposed to the epidermis above it, and overlies the *sub-cutaneous connective tissue*, which contains the coiled tubes of the sweat glands."

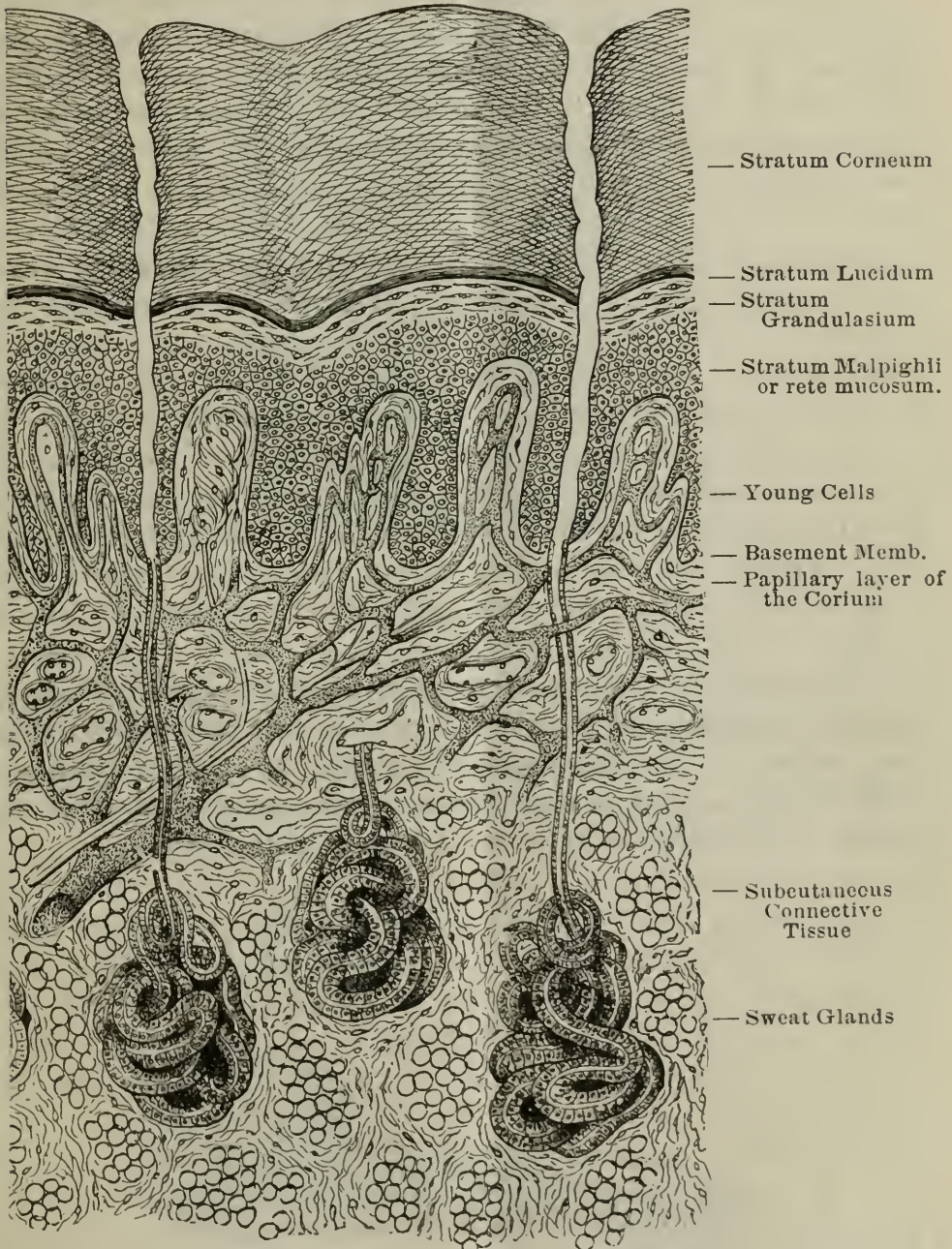


Fig. 1.—From Hyde's Diseases of the Skin.

I quote the following from *Quain's Anatomy*, Vol. II, page 239: "The growth of epidermis continues throughout life. The cells of the Malpighian layer are constantly undergoing multiplication, and the new cells thus produced *push outwards those which are previously formed*. The more superficial cells of the Malpighian layer are thus continually passing on to reinforce the horny layer, the cells as they proceed outwards becoming flattened, and transformed into horny matter. This change seems to occur quite abruptly when the stratum lucidum is

reached; beyond this the cells again swell out somewhat, until on reaching the most superficial layers they are entirely transformed into structureless horny scales which are constantly undergoing desquamation."

The laws governing the reproduction, development, growth and maintenance of the cuticle of the skin are identically the same as those governing the shell of the turtle family, the nails of man and of birds, the hoofs of the ungulates, the horns of the ruminants, excepting the greater part of the deer family, whose horns are not epidermic. These are precisely the same laws also which govern the enamel of the teeth. There is and can be no return of the cells forming this tissue to an embryonal condition. It is not so exceptional in its nature that it needs divine interposition in its structure. It simply follows the same laws which govern the formation of all epiblastic tissues, and is formed by *a succession of deposits from below pushing the older cells outwardly*, so that the most superficial layer of the enamel must of necessity be the first to have been deposited; and it is my purpose to demonstrate, by well known authorities, that all epidermic structures are dependent upon the laws governing the development of the epiderm of the skin; for it is from close study of these laws in these different structures that I have concluded that the enamel must develop in precisely the same manner.

Time will not permit me to speak of more than a few of these epidermoid structures, but those I will mention will be sufficient to show that they are all developed under one general law; and it will not be possible for those who maintain the theory at present accepted to show me one single exception to the law I have submitted to you.

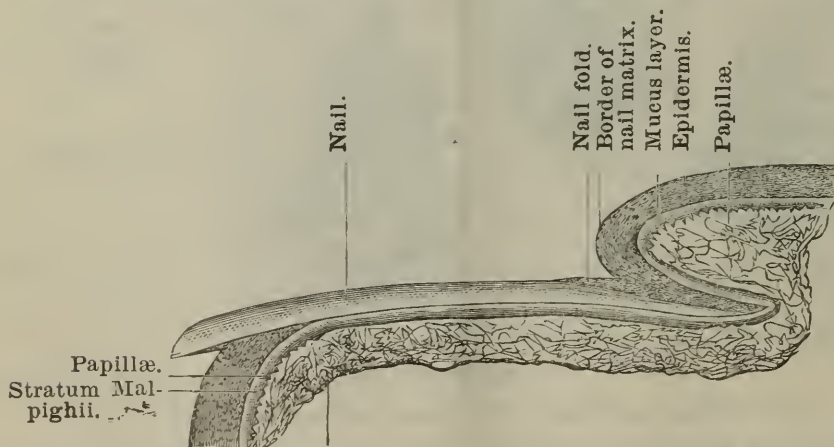


Fig. 2.

Fig. 2. Longitudinal section through the nail and its bed. Magnified six times.—*From Reeves' Human Morphology.*

Fig. 3. Vertical transverse section through a small portion of a human nail, and its matrix. Highly magnified.—*After Kolliker in Quain's Anatomy.* A, being the corium of the nail-bed, raised into ridges or laminæ, *a*, fitting into the corresponding laminæ *b* of the

nail; B, the Malpighian; C, horny layer; *d*, vertical cells, being the youngest and deepest; *e*, upper and more flattened cell of the Malpighian layer.

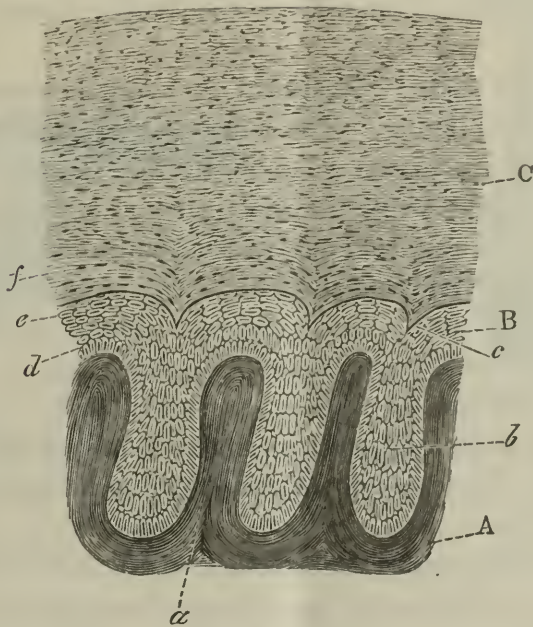


Fig. 3.

In reference to the formation of the nail, QUAIN says: "The nail, like the cuticle, is made up of epithelial cells. The oldest and most superficial of these are the broadest and hardest, but, at the same time, very thin, and so intimately connected together that their respective limits are scarcely discernible. They form the exterior horny part of the nail, and cohere together in irregular layers, so as to give this part a lamellar structure. On the other hand, the youngest cells, which are those situated *at the root and under surface*, are softer and of a rounded or polygonal shape. The deepest layer differs somewhat from the others, in having its cells elongated and arranged perpendicularly, as in the case of the epidermis. Thus the under part of the nail (Fig. 3, B) corresponds in nature with the Malpighian or mucous layer of the epidermis, and the upper part (C) with the horny layer. As in the case of the epidermis, the hardened scales of the nails may be made to reassume their cellular character by treatment with caustic alkali, and afterwards with water, and then it is seen that they still retain their nuclei.

"The growth of the nail is effected by a constant generation of cells at the root and under surface. *Each successive series of these cells being followed and pushed from their original place by others*, they become flattened into dry, hard and inseparably coherent scales. By the addition of new cells at the posterior edge the nail is made to advance, and by the apposition of similar particles to its *under surface* it grows in thickness, so that it is thicker at the free border than at the root. The nail being thus merely a modified and exuberant part of the

epidermis, the question at one time raised whether that membrane is continued underneath it, loses its significance. When a nail is thrown off by suppuration, or pulled away by violence, a new one is produced in its place, provided any of the cells of the deeper layers of the epithelium are left."

The hoof of the horse is developed in a similar manner to that of the nail of the human being. The outer portion, the wall or crust, is developed from the epidermic or epiblastic layer, and is analogous to the enamel of the teeth; while the inner portion is developed from the mesoblastic layer, and is analogous to the dentine of the teeth. The outer layer of *the true dermoid structure*—the mesoblastic—is formed into laminæ or ridges, and is very vascular. These laminæ fit between other laminæ in the horny portion, and at the point of union the ungualblasts, derived from the Malpighian layer, build the crust. It is formed from within outwardly, and from above downwardly, the bottom of the crust being the thickest. So eminent an authority as FLOWER says on this subject:

"The hoof of the horse corresponds to the nail or claw of other mammals, but is so constructed as to form a complete and very solid case to the expanded portion of the toe, giving a firm basis of support formed of a non-sensitive substance, which is continually renewed by the addition of material from within, as its surface wears away by friction against the ground."

Certain diseases will cause the shedding of the horny portion from the inner portion, and at death this horny portion can also readily be removed. The wearing away of the hoof causes an increased action of the cells formed from the Malpighian layer, a large portion of which, being in the formative state, can be separated at this point with comparative ease. If it were not for the laminæ of the epiblastic layer of the hoof wedging themselves between those of the mesoblastic layer, it would be easily torn off during life.

Another illustration of this governing principle is to be found in the horns of our domestic cattle. The outer layer (the true horn) is epiblastic, while the inner layer is mesoblastic, being formed from within outwardly. If a section of fresh horn be cut, the different layers may be seen without the aid of a microscope. The outermost layer is invariably the hardest, and the layers gradually get softer and softer as we proceed inwardly, until the pure germinal or formative matter is reached. This is found to be of a gluey or sticky consistency. If the external horn be stricken from its internal structure, as I have frequently seen done, a sticky substance will be found to remain on that portion directly beneath; and if the outer or epiblastic horn layer be at once replaced and bound in position, union will take place, and it will become firm as before. If, however, the epiblastic portion stricken off be not replaced, *and any of the formative cells of the deeper layer*

remain, they will reproduce a new outer horny layer, though it will be inferior to the original one.

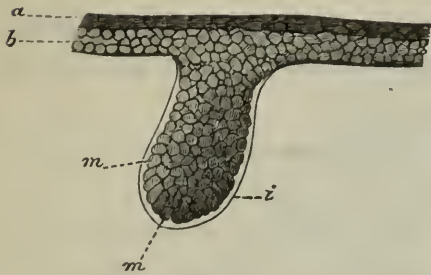


Fig. 4.

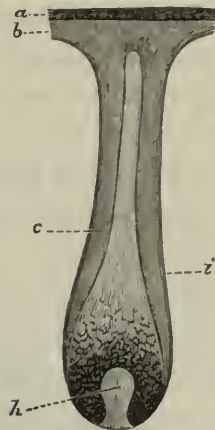


Fig. 5.

Fig. 4. Hair rudiment from an embryo of six weeks, magnified 350 diameters, after Kolliker in *Quain's Anatomy*. *a*, horny, and *b* mucous or malpighian layer of cuticle; *i*, limiting or basement membrane; *m*, cells (some of which are assuming an oblong figure), which chiefly form the future hair.

Fig. 5. Rudiment of a hair of the eyebrow, magnified 50 diameters (Kolliker). *a*, horny layer or cuticle; *b*, mucous layer; *c*, external layer of root-sheath; *i*, limiting or basement membrane; *h*, papillæ.

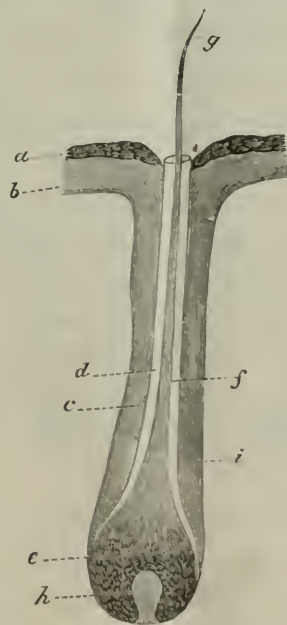


Fig. 6.

Fig. 6. Hair follicle from the eyebrow, with the hair just protruded. The inner layer of the root-sheath rises to the mouth of the hair follicle. *a*, horny and *b*, mucous or malpighian layer; *e*, hair knob; *f*, stem and *g*, point of hair; *d*, internal layer of root-sheath; *h*, papilla; *i*, limiting or basement membrane.

The diagrams 4, 5, 6, taken from *Quain's Anatomy*, aptly illustrate the growth of hair.

The similarity between the dipping down of the Malpighian layer of the skin into the papillary layer to form the hair follicle, in Fig. 4, and the dipping down of the same layer to form the enamel organ is very striking.

It will be seen that the papilla grows from the corium, or true derm, from below the basement membrane, which is analogous to the dentine germ of the teeth.

The following is an extract on the development of the hair, from the ninth edition of *Quain's Anatomy*, Vol. II, page 252:

"On the surface of the papilla, at the bottom of the follicle" (at the surface of the dentine, at the bottom of the enamel) "there is a continual multiplication of cells. These, for the most part, lengthen out and unite into the flattened fibres which compose the fibrous part of the hair, and certain of them getting filled with pigment give rise to the colored streaks and patches in that tissue; their nuclei, at first, also lengthen in the same manner, at last they partly become indistinct. The cells *next the circumference* expand into the scales which form the imbricated cuticular layer. The medulla, where it exists, is formed by the cells nearest the centre.

"The substance of the hair, of epidermic nature, is, like the epidermis itself, quite extra-vascular, but like that structure also, it is organized and subject to internal organic changes."

This is precisely the case with the enamel of the teeth. Admitting that the enamel contains only two and one-half per cent. of organic matter, and that it is extravascular, it certainly must have nourishment to sustain this percentage, small though it is, and it receives it by imbibition, in a manner similar to other extravascular structures. Every dentist knows that the enamel of the teeth is affected by disease through the system just as the hair is. Iron and medicinal acids taken by the mouth do not affect the enamel of the teeth by actual contact with it; they act through the system; and such being the fact, the theory that enamel is dead matter, needing and receiving no nourishment, falls to the ground.

Figs. 7 and 8 are fac similes, as near as could be cut, of a slide containing a section of the jaw of a rat, which was prepared by Mr. Cole, of London, one of the most celebrated and expert microscopical slide makers in Europe. The line surmounting the dentine, however, in Fig. 7, is purely diagrammatical. These figures show a temporary and a permanent tooth. Between the enamel and the dentine is a space, which space is also shown in the cut by Dr. Williams presented below; in fact all good sections show the same formation.

When the enamel is not fully developed, or the younger the organ is, the greater the space will be found to be. It becomes less and less

as the tooth matures. This space is occupied by exceedingly young germinal matter, and, as the tooth develops the space becomes filled up, and there is union between the dentine and the enamel. If a tooth be extracted before it is fully matured, and then dried, the enamel and dentine can readily be separated. At this point, also, the formed enamel rods can be seen, and on the under surface the soft germinal matter is plainly visible.



Fig. 7.

Fig. 7. Vertical section of the jaw of a rat, showing a temporary and a permanent tooth germ.

It appears in the section under the microscope, also in Fig. 8, as though there was a line of demarcation, or an edge to the formed enamel. In reality no such line exists, it being an "optical delusion" in the microscopical examination.

In reference to this supposed line, Dr. Henry Beates, Jr., President of the Philadelphia Clinical Society, of this city, an expert pathological and histological microscopist, and a gentleman whose learning and scientific attainments will not be questioned by any man, says:

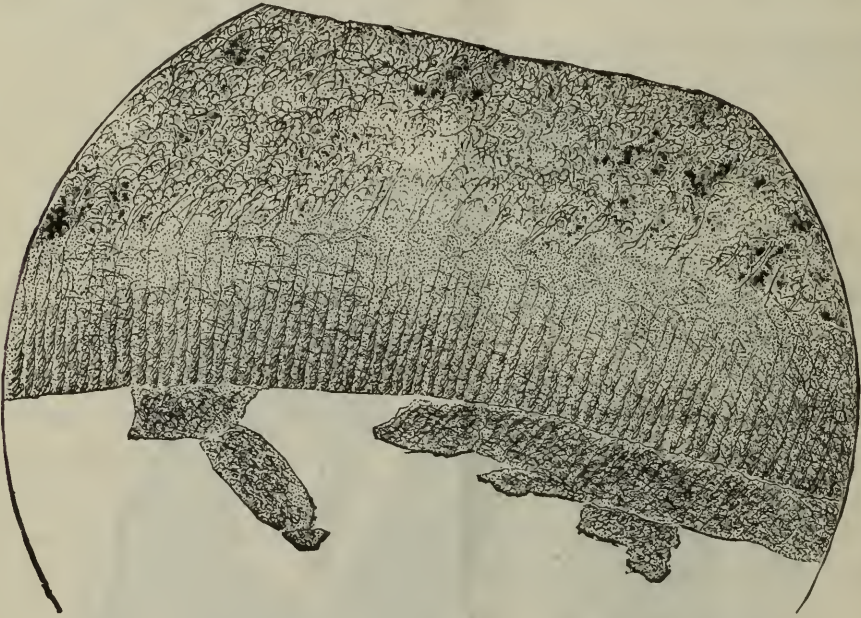


Fig. 8.

Fig. 8. Portion of the same enlarged. It shows the formed enamel and the formative colloid material below.

“A microscopic study of the section of embryonic tooth you sent me discloses the existence of a space between the dentine and the enamel. At the base of the enamel, *i. e.*, the surface of the enamel rods next to the dentine, there exists an apparent line or membrane. Below this line is a somewhat homogeneous or colloid looking substance, evidently of much less consistency than the structure above. Above this line is the enamel, more fully developed and already hardened. At first glance I considered this line to be a membrane similar to the membrana propria of glandular tissue, but, upon close study, was surprised to find its existence a mere optical delusion, dependent upon an angular displacement of the inferior or softer portions of the enamel rods—so there is no line or membrane in reality at all. The inferior, softer and apparently more homogeneous substance is certainly the newer or primarily secreted enamel substance. The absence of a membrane, the physical characteristics of the enamel, the position of the softer and more indurated enamel, all tend to confirm the view that the enamel is formed at the dentine, and develops and becomes indurated as it is elevated by the development of new structure below, precisely as in the case of epidermal cells. I believe the teeth to offer no exception to the general physiological law, and consider the doctrine which teaches that

enamel is formed upon the dentine and grows by deposits from above, as erroneous as the announcement that a membrane or line exists in the middle of the enamel rods."

DEAN'S LEGROS AND MAGITO describes the under layer of the enamel in the following language :

"The prismatic cells of the concave surface of the enamel organ (the enamel cells or ameloblasts) offer some peculiar characteristics to which we call your attention. Originally identical with those of the lowest layer of the malpighian stratum, from which they are directly derived, these cells, besides increasing in length, experience some important changes in form. The extremity that is directed toward the centre of the organ becomes long and slender, forming processes which unite with or are continuous with the filaments that proceed from those neighboring cells which constitute a portion of the enamel organ, known as the *stratum intermedium*. The opposite or peripheral extremity, that is to say the base of these cells, presents the regular prismatic form of a hexagon. If, now, we examine an underanged layer of these prismatic cells or ameloblasts magnified about 400 diameters, we shall find that the free margin of this layer (that is to say, the part that corresponds to the base of these cells) appears clearer than the bodies of the cells themselves, and in a fresh preparation seems like a continuous line. If, however, a like examination be made of some hardened preparation, or if careful means be taken to detach this marginal line, which the edge of the section of the plateau represents, from the base of it, it will be found that it can be subdivided into as many sections as there are cells in the layer. And yet some preparations may be met with in which more or less of these clear lines become detached in the form of a shred ribbon. It is this strip, which is evidently made continuous by artificial means, that has given rise to the hypothesis that a membrane invests or lines the concave face of this stratum of cell-ameloblasts. We shall see, moreover, in examining these peculiarities in detail, that this appearance is not specially and exclusively confined to the cells of the enamel organ, since it exists wherever we find the prismatic cells provided with what has been termed a *plateau*. The prismatic cells of the intestines are known to be thus supplied."

You will notice that the above quotation speaks of the "enamel cells," "ameloblasts," cells of the enamel organ," as all being on the lower strata. It also uses the analogy of this lower layer of the enamel organ with that of the prismatic cells of the intestines. No one will dispute that these cells constantly undergo multiplication, and the new cells thus produced *push outwards those which have been previously formed*. It is one more point in favor of my position, that the enamel is not built by deposit from above, but pushed upwards by a multiplication of cells from below.

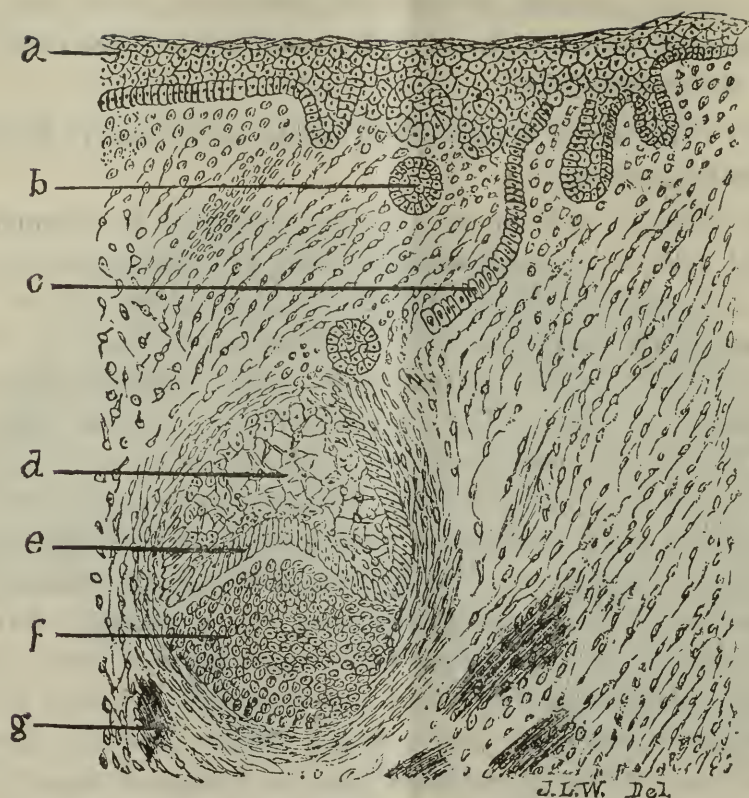


Fig. 9.

Fig. 9. From the *Dental Cosmos*.

Diagram No. 9, which appeared in the April number of the *Dental Cosmos* for 1884, page 197, is by Dr. J. L. Williams, an advocate of the "accepted theory," and a gentleman who, by reason of his eminent ability, has been selected to write a chapter upon the development of the teeth, &c., in the forthcoming work on Dentistry by American Authors.

- a. Epithelial layer of mucous membrane.
- b. c. Breaking up of epithelial cord and formation of globular bodies, from which supernumerary teeth are said to be developed.
- d. Stellate cells of enamel organ.
- e. Columnar cells, from which enamel cells are developed.
- f. Dentine germ.
- g. Ossification of inferior maxilla.

This is a fair representation of the enamel organ, though diagrammatical as all plates are. Let us, however, compare it with the diagrams of other epidermoid structures. Dr. Williams describes *e* as columnar cells from which enamel cells are developed. This is true. The Stratum Malpighii in the diagram of the skin represents the columnar cells from which the epidermis is developed. *b*, in the diagram of the nail, shows the columnar cells from which nail is developed, and *m*, in the diagram of the hair, shows the cells from which the hair is developed.

In all these structures it will be seen that these columnar cells are of the Malpighian layer of the epiderm, and originally from the epiblastic layer of the embryo. All authorities agree in stating that at the bottom (where this layer exists) there is a continual multiplication of these cells, "*each successive series being followed and pushed from their original place by others.*" I cannot, therefore, accept the theory, groundless in proof and supported, as far as I can see, only by assertion, which selects a single inoffending tissue of the body, and in referenee to which entirely reverses this formative order. There are legitimate discoveries possible in the field of Histology. As a science, it is yet in its infancy. But a discovery to support the truth of which, it is necessary, magic-like, to change a fully developed cell into an embryonal state, and wholly and completely set aside every law of nature, should at least be looked upon with suspicion, if, indeed, it should not be charged with being an enthusiastic prostitution of a great science.

The facts I have produced, and others I might mention did space permit, have led me to question the truth of the theory that these particular columnar epidemic cells of the enamel act diametrically opposite to all other epiblastic structures in the animal creation. There is no reason why it should be so; there is no proof that it is so, and on account of the lack of these two essentials to every truth I was led to investigate the theory, and now hold that it is not so.

AN ANOMALOUS FACIAL MUSCLE.

BY C. LEVIS BOWER, PH.G.

In a recent dissection made by me at the Philadelphia School of Anatomy, I found an anomalous muscular slip in the oculo-nasal region that appears to merit description, since it has not been seen previously by several anatomists to whom I have shown it.

It arose from the malar bone just in front of the zygomaticus major, and, after running obliquely downward parallel to this muscle for about half an inch, turned upward toward the orbicularis palpebrarum, beneath the middle of which it divided into two portions. The upper or wider portion seemed to run under the orbicularis of the lower lid, and its fibres afterwards became visible and were lost in the orbicularis fibres of the upper lid.

The lower portion was inserted or lost in the outer side of the levator labii superioris alæque nasi, near its middle.

There was a distinct interval between the two bands before they reached their points of insertion.

It presented no tendon; nor was there any loop of fascia noticed.

The zygomaticus minor crossed the anomalous muscle on a more superficial plane.—*The Polyclinic.*

TAKING THE BITE.

FRANK R. FABER, D.D.S.

Mechanic to the Profession, Philadelphia, Pa.

One of the knotty points connected with Dental Mechanism is the getting of a correct bite. As much annoyance and inconvenience in this one point is to be found, as in any other particular part of the whole operation, not only to the dentist who patronizes the mechanical laboratories, and who stands more chance of inconvenience in this way, but also the individual who does his own mechanical work, and although he is familiar with the mouth, and thinks he knows it in its full detail, is very often surprised to find the bite incorrect when the case is finished. It is very clear to the minds of my readers that although the apposition of the jaws on the articulator may look wrong to the dental mechanic, he never having, "or in most cases never having" seen the patient, has nothing else left to do but mount the teeth in wax, and get them ready for trial in the mouth. While on the other hand, if the man who handles the mouth has had some experience in this direction, he can, in a majority of cases, satisfy himself with a glance as to whether it is right or wrong, and if wrong a fresh attempt made.

The man you occasionally meet who never has any failures in taking bites, you can very quickly understand does not have many to take; he is the same man whose fillings never fail, and whose plates are always a success. There are no set rules for correctness in this direction, or if there are I have never found them. A great deal of opposition is given to the dentist by the patient, some of them in their good natured endeavors to get it right, others by their stupidity and assurance, "they know how;" particularly is this noticeable of the large-mouthed female patient, who wants to close and purse up her lips in imitation of a Miss of sixteen. It does not do to get out of patience, but it is certainly exasperating when a patient sits in the chair to have a bite taken for a partial set of teeth, and whose occlusion of natural teeth is normal, persists in bringing them end on end, upper and lower, and at last getting them right, "this time by mistake." The hardest patients to get along with are those to whom you give the most instruction, and for this reason when you are getting ready to take the bite, and taking it, talk about anything else but what you are going to do next; talk about something—anything to divert the patient's attention from what you are doing.

The prime movement is to get a set of teeth that will be finished when they are put into the mouth. It will impress the patient more favorably than if there be any grinding and fitting to do, and it is never as satisfactorily done on the finished plate as it can be in the course of construction. The ideas which I propose to give are not the result of an individual practice by any means, but are the points which have

been collected and sifted down, from a personal contact with many of our first-class dentists in their own offices, both taking bites and seeing them taken there, and are the ones which I have been most successful with.

A trial plate which will stay in its place is the first important consideration; for this purpose a plate is made of block tin of about 16-gauge, swaged, with the air chamber in position; if you design one for the case, this will fit, and if suction is applied it will not fall or tilt; if the upper mouth be heavily undercut, the tin plate can be made to extend to the centre of the ridge or a little beyond that point, and the balance built on with gutta-percha or composition; by this method there is less danger of scraping the model while putting the plate off and on, and less danger of breaking it when the flask is separated, for the teeth are mounted for trial on the tin plate. If the case be a full upper with natural lower ones to occlude, first look at your patient and see where fullness is needed; observe the lip, if it be firm and straight from one corner to the other, and both upper and lower lip meeting in ordinary movements, and without undue pressure upon the muscles; carve the length, and judge from the centre line; if on the other hand the curve of the lip is an arc of a circle, and in ordinary movements slightly apart in the centre and touching at the side, or when it approaches the corner, then carve from the position the canine tooth occupied when it was in the mouth, for this is the length tooth, it being the same length as the lip when in repose, and the incisors slightly longer than the lip. Observe when the patient talks or laughs which side of the lip travels up first, for it will be observed that in most mouths the muscles on one side are more active than on the other; this side of the set of teeth is to be made shorter than the side over which the lip moves more slowly; this precaution will balance your set of teeth, and make them look straight in the mouth, which is what they are for; out of the mouth they will look longer on one side than on the other, but that is a matter of perfect indifference. Put on the wax of minimum quantity, just enough to secure the guide for fullness, and furnish area enough for the lower teeth to mark; observe the points, and carve it for length and to get the exact shortness of that quick side of the lip, if there be one; now build on the fullness, if out of the mouth there be more wax on one side than on the other, no matter; it is not intended to look even when held in the hand and viewed, the object being to restore the lost contour of the patient's features; this settled satisfactorily, direct the patient to close the teeth, and touch the wax with them, not biting into it; this will mark slightly; take this out of the mouth and do something around the office, anything to divert the patient's mind from the bite; now put it in, and see if the lower teeth close as they did first; if they do, not having any previous indentations to fill their way into, you are pretty safe to stop; mark the line from the centre of the nose, and not from

the fraenum, as it is frequently out of true ; out of the mouth this line will often look crooked ; give the central teeth the same incline ; what matters it, if when in the mouth they are straight ? Take a wax impression of the lower jaw, and cast a model ; at this stage of the operation it might be well to observe that bubbles at the points or crowns of the teeth are not a necessary adjunct, in fact, the fewer of these the better ; when separated, place in position on the wax bite, secure them together with some cement, and mount on a good articulator, not one of the cheap rickety traps with which the market is flooded, but a good reliable one, well fitted and true in its movements, and which bears a price corresponding to the amount of time and labor expended in its perfection. A dollar saved on an articulator, by buying a cheap one, is not a dollar saved, but a good many of them squandered in subsequent loss of time alone. Now divide from the wax to a mark which you make in the plaster cast, with a pair of fixed callipers, the length of the wax at the centre line, and at the corners where the canines will come ; first place one point of the instrument on the edge of the wax ; then touch the plaster and make the indentation ; this secures the length ; remove the wax from the tin plate, and get it ready for grinding the teeth ; secure the set screw which raises and lowers the articulator if you wish ; I prefer not, for I frequently raise or lower it a little if it is deemed advisable while working. Grind and arrange the teeth according to the guide marks, and try them in the mouth ; if they are right, proceed to finish ; if any trifling matter is needed, adjust it at this setting ; if anything more complicated, which calls for a new bite and arrangement, proceed at once ; never mind the extra trouble, it will pay in the end ; there are plenty of observing people, who are not dentists, who know when a set of teeth looks right, and who would not utter a sound if they thought it did not. For a full upper and lower, use the tin plates : carve the upper as before, carve the lower to conform to it, and when they are brought into occlusion, see that they strike firmly and squarely ; if either the upper or lower moves ever so slightly, something is wrong ; find the place which causes the movement, and level it ; pin the two together by pushing three or four dress pins from the outside of the upper wax into the lower, and remove together ; when ready for grinding, place the lower trial plate and wax in position ; then grind and arrange the six upper front teeth ; now your fullness is secured ; proceed and fit up the rest of the set.

For partial sets carving of fullness is not necessary, unless it be for four or eight front teeth ; then the proceeding is the same as before. Never omit the wax impression of the opposing jaw ; it may be a little trouble at first, but to satisfy yourself on this point, make a few sets with a plaster cast of the jaw for bite, and then try one taken the old way, and see how quickly you come to the conclusion that it is really very little trouble to do it right. When doing metal work the tin plates are un-

necessary, as the metal plates can be used for the same purpose when they are tried in the mouth.

The points to be borne in mind are, the getting of the set of teeth straight when in the mouth, without consideration of how they look out of it, slovenly or careless work of course excluded; as good a restoration of the features as can be secured, and being particular never to call attention to the fact of your taking the bite, or the importance of a correct one.

The multitude of information one can collect from his professional brethren, such as throwing the head back until the muscles are drawn tense, and then closing the mouth, or throwing the body well forward, using the motion of deglutition when closing the wax, may be well enough when you can get a patient who will follow directions and not get everything wrong in their endeavors to assist you. The plan of not appearing anxious, or by your manner allowing the patient to understand that it is a major operation, has with me been fraught with the best results. You are cordially invited to try the different methods and select for yourself.

MAY 30th, 1884.

POISONS DEVELOPED IN THE BODY.

On this subject Dr. Benjamin W. Richardson says: "In my reports to the British Association for the Advancement of Science, I have pointed out that the substance *amylene*, an organic product which can be easily constructed in vital chemical changes, produces phenomena identical with those of somnambulism, and with some of the phenomena of hysteria. I have pointed out, in the same reports, that another organic product, called *mercaptan* (sulphur-alcohol), causes, when inhaled, symptoms of profoundest melancholy, and that, in the process of being eliminated by the breath, it gives to the breath an odor which is identical with the odor evolved in the breaths of many patients who are suffering from the disease called melancholia. From these observations I have ventured to suggest that various forms of mental affection and of nervous affection depend for their development on the presence in the body of organic chemical compounds, formed and distilled through an unnatural chemical process carried on in the body itself. I have endeavored to develop this subject somewhat further by my researches on the action of lactic acid on animal bodies. I have shown by experiment that this acid, diffused through the body by the blood, acts as a direct irritant upon the lining membrane of the heart, the *endocardium*, and all the fibro-serous membranes of the body, so that a synthesis of heart-disease and rheumatism can be established by its means. Lactic acid is the most copious product thrown out in the disease called rheumatic fever, and, as many of the phenomena resulting from that disease take the same form and character as those producible by lactic acid, I infer

from the best evidence attainable that this acid, the product of a fermentative change going on in the body during acute rheumatism, is the cause of the secondary structural affections which so frequently follow acute rheumatism. It has been for some time past observed by several able physicians that persons who are suffering from the affection known as diabetes give off a peculiar odor from their breath—an odor which to some is like that of vinegar, to others of sour beer, to others of a mixture of ether and chloroform, to others of acetic ether. I should compare it myself to the odor of grains as it is detected in a brewery. When this odor is observed in the breath of diabetic patients, it frequently happens that they become sleepy, cold and unconscious, with the results of coma and death. At one time it was supposed that these phenomena were uræmic, and were due to the presence of urea in the blood; but the absence of convulsion and of some other symptoms destroys this hypothesis, or at all events shakes it. It is now believed that the symptoms owe their origin to the decomposition of the diabetic sugar which is in the body, and to the production from that decomposition of a volatile ethereal fluid called *acetone*, a fluid which has been discovered in the blood and secretions of these affected persons, who are said therefore to be suffering from the disease ‘*acetonæmia*.’ From the action of acetone upon animal bodies I infer that the theory of *acetonæmia* is founded on good evidence.” Dr. Richardson mentions also the secondary absorption of poisonous matter from wounds, and from the abraded and ulcerating surfaces produced in diphtheria, malignant scarlet fever, etc., and concludes by saying: “Such observations as have been noticed under this short head lead to a study of another new point, namely, the possibility of the formation of organic alkaloids in the body during some conditions of disease. Scientific discovery has not, however, advanced so far as to enable me at this moment to do more than allude to one of the newest and most important studies in modern medical research.”—*Popular Science Monthly*.

GRANULATED BONE AS AN ARTICLE OF DENTAL HYGIENE.

BY H. E. DENNETT, D.D.S., BOSTON, MASS.

In the discharge of their duties, the physician and dentist are daily asked by their patients, “What shall I do to prevent my teeth from decaying?” The answer must be, “Correct your diet.” That is, eat such food and only such as contains all its natural elements. If we eat the products of grain, we should eat it with all its elements as furnished by nature. If we eat meat, we must eat bones, or our system will suffer from this violation of one of nature’s unerring laws. Dental development in man is discernible as early as the seventh week of intra-uterine life; hence, the importance of a strictly correct diet from the start, if mothers desire to give birth to children who may have perfectly formed

teeth. The same dietetic rule will secure the foundation for a good bony framework. A mother who passes through the periods of gestation and lactation without a sufficient amount of bone and tooth element in her food will suffer from decay of the teeth, accompanied with the usual pain and suffering in proportion to the extent of the deficiency. The lime will be dissolved from her teeth, taken into the circulation, and appropriated by the offspring. Excepting civilized man, all flesh-eating animals eat as much of the bone of the animal they devour as they can break with their teeth sufficiently fine to swallow, and all have good dental organs. Place before a tribe of Indians everything the earth produces in the shape of food, and they will eat only animal food as long as that lasts; but place them upon a reservation, and feed them as civilized people feed themselves, and they too soon suffer from decay of the teeth. Take from either of the above classes their supply of bone which they can get with their animal food, and decay of the teeth is sure to follow. Even our domestic herbivorous animals thrive better by having bone added to their bill of fare.

The cow which every year gives birth to young has an excessive drain upon her for bone material, and craves bone to such an extent that she will even try to masticate large ones, as every farmer's boy can testify.

Veterinary surgeons have long known that certain diseases of their dumb patients can only be successfully treated by giving them bone meal.

Persons engaged in raising poultry know that their birds must have lime supplied to them, or they will furnish only soft-shelled eggs. Bone is now acknowledged to be the best fertilizer for New England farms. Visit one of these farms in the month of June, and you can count the hills half a mile away where the corn grew three years before by the spots of grass which stud the earth at regular intervals. The farmer will tell you that "bone did it." The evident deficiency in the soil explains the too apparent lack in the products of the soil.

Arguments in favor of eating bone to prevent decay of the teeth, as well as to cure a long catalogue of bone and kindred diseases, might be continued indefinitely; but, as "A word to the wise is sufficient," it seems only necessary to add that the results obtained from an experiment, long continued, upon an entire family, were such as fully to establish its beneficial effect.

The bones used were selected from perfectly healthy animals, none being accepted that bore the slightest blemish, carefully cured, without being allowed to pass through any perceptible chemical changes, finely granulated and incorporated into soups, gravies, bread, etc., in the proportion of from one to three spoonfuls with each pint of gravy, soup or flour.

The relative proportion of nutritive elements in one hundred parts of different kinds of animal food have been found as follows: Beef, 26; mutton, 29; pork, 24; chicken, 27; codfish, 21; blood, 21; brain, 20; white of egg, 14; milk, 7; bone, 51.—*New England Journal of Dentistry.*

ANTE-NATAL INFLUENCES.

There is hardly any subject of greater interest, and in regard to which so little is known, as that of ante-natal influence, whether at the time of conception, or in the subsequent development of the new being. Speculations are many; dreams and dreamers, fictions and fancies are numerous, but our real knowledge is very little more than that which was possessed many centuries ago. Diogenes said to the stupid youth: "Your father was very drunk when you were conceived." Vulcan's deformity was the proof of Jupiter's drunkenness when he was begotten. Modern science has shown that if a fruitful coition occurs when either of the parties is drunk, the child usually has some physical, intellectual, or moral defect—epileptics and imbeciles may thus be created. This is about the limit of our certain knowledge.

But with this fact proved, it is in the highest degree probable that less pronounced, less easily discovered and appreciable intellectual and physical conditions of the creators at the time of creation may, and do impress themselves upon the offspring. The swift and subtle power by which the sunlight clearly and indelibly reproduces on dead matter the exact image of form, features, and expression, may be but the type of the impressing the intellectual, moral, and physical character upon living matter at the time of the creation of a new being, and the qualities and characters that are shown in the months and years that follow are but the working out of those first forces in organization.

Considering the fact that most children are accidents, we have no reason for surprise at examples of physical deformity or imperfection, mental deficiencies, or moral obliquities, but rather that the average is so good. When human beings invest the possibilities of reproduction with its true and vast responsibilities, with its far-reaching consequences, there will be a great improvement in offspring. Man or woman prepares for the photographer by a careful toilet, strives to go unfatigued, and with a face undarkened by sorrow or anxiety—in a word, is desirous, if not from personal vanity, at least with the wish to please others, of appearing at his or her best in the counterfeit presentment which is made. Ought not much more care to be exercised by parents in the possible reproduction of themselves, of themselves as they are at that special time? A child is the incarnation of the qualities, good or bad, of the parents, and possibly it may be the incarnation of transitory states, temporary impulses, feelings, or thoughts—noble or base, cheerful or sad, healthy or morbid—of those parents. A few minutes may determine whether these living images shall be happy, helpful, useful members of society, and a blessing to their homes, or born to a heritage of disordered, diseased nature, darkening their own lives and those of others, until death is a blessed relief.

As to subsequent influences exerted through the pregnant woman's mind upon her unborn child, we are in the region of fable and con-

jecture; most extraordinary stories have been told of the effects of some horrible sight which suddenly startles the mother, and, through her, affects the foetus. Van Swieten states that he saw a young lady who had upon her neck the exact representation of a caterpillar, as "closely resembling it as two eggs resemble," and the cause was that the mother when pregnant was frightened by finding a caterpillar upon her neck. Quite in contrast is the alledged influence of a continuous impression. Haller, a man not less remarkable for his learning than for his truthfulness—at least he never made a statement that he did not believe—assures us that an Ethiopian woman had several white children, and the explanation was that she had in her house a white marble statue. The physician to-day would give a more plausible cause of such color anomalies. A recent writer has attributed the kleptomania of a wealthy lady to the fact that when pregnant her mother was denied the "cravings for a variety of things" by the stinginess of her husband. Again, a child has been born with harelip whose mother attributes the deformity to her having seen, when two or three months pregnant, or later, a child or adult with similar deformity; the physician knows that such arrest of development must have occurred before the earlier of those periods. It is, in part, because of such extravagant and unreasonable stories that the great mass of physicians reject the theory of mental impressions made upon the mother in pregnancy affecting the foetus. Another reason for this general rejection is our inability to explain how such impressions can act upon the foetus. But it would be more scientific to find out whether they do, and afterward seek the mode; before deciding the impossibility of a fact occurring, let us first look for the facts, and then seek their explanation. Here is an important field for inquiry, for the collection as well-authenticated facts; after this collection we may determine their meaning, make their interpretation. That the foetus may be affected by impressions made upon the mother's mind has long been and still is commonly believed. A popular belief so widespread and so long-lasting indicates in these very conditions the probability of its containing some element of truth.

We have been led to these reflections by reading the report of a lecture recently given by M. LEGRAND DU SAULLE, at Salpetriere, in which he refers to the "infants of the Siege." He states that the numerous disorders of development and the exceptional mortality observed in children born in the latter months of 1871, caused them to be known among the laboring population as *enfants du Siege*. Inquiry proved that of 92 children conceived during the siege, 64 had physical, intellectual, or affective anomalies, and 28 others were small and sickly; 21 of the 64 suffered as to the intellect—dull, imbeciles, or idiots. M. Legrand du Saulle regards "the pathogeny as complex, its chief elements being alcoholism, inanition, and the psychical state determined by the moral shock in circumstances especially dramatic."—*Medical News*.

DENTAL SOCIETIES.**INDIANA STATE DENTAL ASSOCIATION.**

The Annual Meeting of the Indiana State Dental Association will be held in Indianapolis, Ind., commencing June 24, 1884, and continuing three days. The State board of Dental Examiners will meet at the same time and place.

M. H. CAMPBELL, *President*,
Kingstown, Ind.

NEW HAMPSHIRE DENTAL SOCIETY.

The Eighth Annual Meeting of the New Hampshire Dental Society will be held at Concord, N. H., June 17, commencing at 11 o'clock, A. M. All dentists of the State are cordially invited to attend. Preparations are being made for a large meeting.

The Board of Censors will meet for the examination of candidates for license, at Phoenix Hotel, Monday evening, June 16, at 7 o'clock.

E. B. DAVIS, *Secretary*,
Concord, N. H.

MISSOURI STATE DENTAL ASSOCIATION.

The Twentieth Annual Meeting of the Missouri State Dental Association will be held at Sweet Springs, Saline Co., Mo., commencing Tuesday, July 8th, and continuing four days. Reduced railroad and hotel rates have been secured, and a large attendance is expected. Every member of the profession is cordially invited to attend. For programmes and other information address Dr. G. W. Tindall, Chairman Executive Committee, 1108 Main Street, Kansas City, Mo.

G. W. TINDALL, }
S. B. PREVOST, } *Committee.*
E. E. SHATTUCK, }

ODONTOGRAPHIC SOCIETY OF PENNSYLVANIA.

At the Annual Meeting of the Odontographic Society of Pennsylvania, held June 2, 1884, the following officers were elected for the ensuing year:

Dr. Wm. A. Breen, *President*; Dr. Alonzo Boice, *1st Vice President*; Dr. Jos. R. C. Ward, *2d Vice President*; Dr. Harry K. Leech, *Corresponding Secretary*; Dr. Chas. E. Graves, *Recording Secretary*; Dr. John N. Wunderlich, *Treasurer*; Dr. W. R. Webb, *Curator*; Dr. J. Clyde Macartney, *Librarian*; Drs. Thos. C. Stellwagen, L. Ashley Faught, Theo. F. Chupein, *Executive Committee*.

CHAS. E. GRAVES, D.D.S., *Secretary*,
405 North 41st St., Philadelphia.

CONNECTICUT VALLEY DENTAL SOCIETY.

As the dedication of the Buckingham Monument takes place at Hartford, June 18th, the meeting of the Connecticut Valley Dental Society has been changed from June 18th and 19th to June 19th and 20th, at Savin Rock, New Haven, Conn.

W. F. ANDREWS, *Secretary*,
Springfield, Mass.

NEW JERSEY STATE DENTAL SOCIETY.

The Fourteenth Annual Session of the New Jersey State Dental Society will be held at Asbury Park, commencing at 10 o'clock, Wednesday morning, June 16th, and continue in session three days. Several papers of general interest to the profession, by members and eminent practitioners of sister societies, will be read. Many promises have been received by dental dealers of the exhibition of new appliances, and every inducement will be given inventors in furthering the exhibition of anything new or useful to the profession, by consulting Dr. T. N. Scarborough, Lambertville. The headquarters will be at the Coleman House, the largest and most commodious in the Park, directly fronting and within fifty feet of the surf; a large hall, open on all sides, connected with the hotel for meetings. A delightful situation, cool, easy of access from all parts of the State, Philadelphia and New York; low rates and excellent cuisine. The profession generally, members or not, are most cordially invited to meet with us, and spend three days of recreation and profit.

CHAS. A. MEEKER, D.D.S., *Secretary*,
Newark, N. J.

TO THE MEMBERS OF THE DENTAL PROFESSION.

GENTLEMEN: The foremost men of our profession admit the fact that the name of American Dentistry has not that world-wide recognition which its honor demands, and its history would warrant. In our opinion, this is an opportune time for a general movement to place it upon a basis commensurate with its dignity, and we venture to submit the outline of a plan for the purpose, which we think feasible, and which we hope will meet with your sanction and furtherance.

As a nation claiming to lead the world in the science and art of Dentistry, we should have one great representative body of the profession to speak forth with authority its aims, duties and attainments.

Let us, therefore, organize a National Dental Association of the United States, composed of delegates elected by the various State organizations, an equal number from each State, to meet annually, and al-

ways at Washington, D. C. Thus, we would give to Delaware the same voice as to New York. In order to always secure a full meeting, we would suggest six as the number of delegates from each State; a like number of alternates having been elected. Let the National Association elect a Board of Regents, one from each State, who shall control its meetings, setting the time, etc.

As important adjuncts to this Association, we believe it would be found expedient to establish an extensive library, to contain dental works and publications, standard and periodical, foreign and native; and the founding of a national museum, to illustrate the past, present and future of dentistry.

The wonderful benefit to the profession and humanity in general to be derived from these is certainly manifest to every intelligent dentist.

We are sure that room can be obtained in the Smithsonian Institute for the museum, and in the library of the Surgeon General's office for the library. We are equally sure that Congress will grant an appropriation for both purposes, as is done for the medical profession.

Mature deliberation at the meeting for organizing will suggest the details of the scheme, which we have not thought it necessary to go into here.

In conclusion, we would respectfully urge that you elect, at your present meeting, delegates, with alternates, to meet for the purpose of organization, at the time agreed upon by the chairman of the different State delegations.

Do this in anticipation of like action upon the part of other State societies; then forward to Dr. B. H. Catching, Atlanta, Ga., the name and address of your chairman, and he will act as a medium of communication between the different delegations, informing each of the action of the other, thereby bringing about unity of action.

Yours, respectfully,

FRANK ABBOTT, New York City.

J. E. CRAVENS, Indianapolis, Ind.

C. T. STOCKWELL, Springfield, Mass.

F. SEARLE, Springfield, Mass.

W. C. WARDLAW, Augusta, Ga.

B. H. CATCHING, Atlanta, Ga.

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THE Dental Practitioner.

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THE TEETH AND THEIR TREATMENT.

BY ELTON R. SMILIE, M.D., SAN FRANCISCO, CAL.

The structural condition and lesions of the teeth not only afford a certain index to the habits and customs of the present possessors, but reflect back ancestral, through an indefinite series of generations. Even favorable indications interposed and continued for a few successive birth scores leave improved impressions which cannot be concealed from the observing dentist of quick perceptions, notwithstanding neglect and direct injury have again resumed their sway. To the physician who devotes his attention to the treatment of chronic diseases, these hereditary impressions offer a far better means for the detection of characteristic taint than the patient's rehearsal of symptoms can give, except of those from recent acute accession. In ratio with the grade of material, and perfection of union in the structural affinities of the teeth, correct judgment can be formed of the deviations of the osseous system from a normal state; although, in fact, there is no reflex action, and the constituent elements of the teeth differ in composition and density of cohesive arrangement from the flesh-covered bones of the body. The development of the teeth from the pulp expansion of the nerve vessels and neurotic sheath, through which the formative supply of material is derived, shows clearly in the varied elements of the deciduous and permanent sets a special secretive offset from the ossific laboratory designed for their production. The type of this vicarious functional offset is readily recognized in the nacre excretive formations of the oyster and kindred mollusks, for self protection, in addition to subserving the purposes of teeth. This alien adoption and its object is demonstrated in the partiform exposure and adaptation of the crowns for the mill purposes of attrition in grinding food for special fluid admixture in furtherance of digestion. The pulpy and other conditions of the infant at birth would aptly suggest that in original formation the human system became a body corporate by a united organic communism for combined

generative propagation in sexual intercourse. This would seem to admit of proof from conchoidal resemblance, as there are perfect shell representations of all the external organs of sense and reproduction that belong to the human body, while the inhabitants in organic likeness enact in isolated counterpart the functions which would distinguish them as representative organisms of the human system. The elaboration, characteristic elements, and formative adoption of the teeth by the jaws, directly imitate, in pulp excretion, the shell formation of the oyster. *The deciduous teeth* in normal coaptive development with the osseous models of the infantile jaws, practically exemplify in constructive material, and class, forms designed for special service in the varied process requirements of mastication, the first stage of a provisional economy intended to fulfill at maturity, functional demands in the preparation of food for an omnivorous organic community. If the deciduous pulp is examined with magnified power in the process of development, its oyster-like simplicity will appear in strong contrast with the secreting membranous folds designed for the combined excretion of the enamel-nacre, cementum, and osteo-dentine, which, in adaptative reduction, become the highly vitalized centre and root sheaths of the permanent teeth. Yet, with the evident increase of vitalized power necessary for the elaboration of structural material requisite in laminated and concentric combination to sustain intact the relation of parts to resist erosive agencies and functional attrition, at maturity, the semi-alien alliance of the teeth with the animal body remains the same. With a perfectly normal predisposition the nacre, or "milk teeth," are excreted from, and modeled by, the pulp with an exact relation in size and order to correspond with osseous formation of the jaw, insuring regularity and structural conditions necessary for the healthy fulfillment of their limited period of service. The "fifth year teeth," when they emerge from the gum at the masseter angles of the jaws, represent a distinct era in child life, inasmuch that they foreshadow in structural formation the degree of perfection of the permanent set, while they retain in reflection the nacre impression of the deciduous. As the influence of mouth habits preserve or impair the natural integrity of transmissible material impressions, the artificial deteriorations practiced for the creation of morbid appetites by the past and present civilized generations, have in train caused diseased constitutional defects, which have entailed upon the infant in utero a pathological inheritance that in teething reflects back to its mouth source. When the normal conditions of a natural birthright are fulfilled, the bony ossification at the apex of the jaws proceeds in *pari passu* development with the nacre teeth, and when they are matured afford, at the "cutting" period, a firm fulcrum support for their easy exit through the gum integument. In the same manner, and like exactness, the second teeth oppose their cutting edges and grinding surfaces to the points of the deciduous roots, and by absorptive pressure supplant and subextract

their crowns with anæsthetic freedom from pain. But, with the insatiable habits begot from the narcotic stimulation of tobacco, malt, and other spirituous liquors, the exceptions to mal-formation, irregularity, painful dentition and rapid decay from the local renewal of cause, are in near approach to the zero of non-existence. As the sufferings of the infant in teething are entailed with an enforced life, passion begot, in reckless disregard of cause and effect, they have an especial claim for the sympathetic study of the dentist. As in speech, taste, etc., the mouth adjuncts are indicators of remote bodily emotions and functional aberrations in more advanced life, so in infancy to the pulp developing teeth, and rudimentary jaw ossifications, may safely be referred, under existing evils, the painful irritations which usher in disease, and in increasing ratio, death, as the providential deliverer from an inherited existence of suffering. When the incipient teeth and jaw ossifications are lacking in well affinitized material necessary for perfect combination and mutual stimulus in the process of development, the assistance of the mother's fingers can be rendered serviceable, under direction, to supply the aid required by nature.

Even in the more matured state of the jaws in childhood, that precedes the appearance of the second incisors, mothers dutifully interested, and obedient children have, under the dentist's direction, averted irregularities by the stimulating use of their fingers in expanding them by pressure. When at fully matured puberty the wisdom teeth complete the sum total allotted to the series in dentition, they present in greater or less degrees of perfection the crowning foundation for the exercise of the dentist's reparative art. Or if benevolently predisposed, with patrons inclined to reciprocate his interest in their welfare, ready to advise means adapted to structural peculiarities for the preservation of the teeth in freedom from decay.

The Permanent Teeth.—In keeping with their semi-alien formation and adoption by the jaws as separators, comminutors, and grinders of food for organic nutriment, the teeth, in normal perfection, possess, as shown, structural adaptations for self preservation, in comparative freedom from the action of chemical agencies generated in the mouth and stomach, as well as from the wearing attrition of their cutting and crown surfaces in working contact.

By passing in review the more complex secreting and excreting conditions of the nerve vessels, neurotic sheath, and pulp expansions, required in the formation and adaptation of the permanent set to increase in growth of jaws to the terminal period, the structural limits of comparative insensibility from the acutely sensitive, will be readily recognized, and render clear the adaptability of materials and methods of adjustment necessary to be employed for safely fulfilling the preservative resources of the dental vocation. As appears in formative process, the excretive pulp acts as a model to each class of teeth in quadruple corres-

pondence, reflecting from side to side of each jaw peculiar indentations and defects; although, from some local cause the secreting membranes often fail to preserve the same structural unity in the supply and material affinities of composition.

The outer membrane is the secreting and excreting medium of the nacre-enamel, the required fibrine, etc., being supplied from self-absorption in the process of chrystalization, the quality of each being determined by the hereditary normality of the general system.

As the structural formation reveals, the depositing membrane of the cementum is involved with that of the nacre-enamel in the line of distinction, uniting the outer semi-chrystalline with the inner fibro-laminated, embracing in combination the resisting and non-conducting qualities required for the protection of the more elastic and sensitive dentine in its connection with the vitalized pulp. These two stage processes of model formation are effected from below, independent of the osseous radii maturing for the alveolar socket enclosure of the root. Seemingly, after these oyster functions of the pulp have excreted and formed the protective shell, destined to be exposed to the vagaries of artificial habits cultivated by human beings, it enters into an osteo-alliance with the secretive functions of the jaws, producing dentine, which extends its crown-covered body downwards and forms the roots from internal secretion, within the duplication of its outer fold, which, with the completion of the ossific process, forms the alveolar lining membrane of the root and socket. The dentine invests and forms the pulp cell, and from continued functional attachment is known to derive from it reparative aid in kind, when exposed.

The "pulp" is the highly vitalized centre, and is the excreting formative source of the structural elements entering into the varied combinations of tooth substance, acting as the terminal constructive expansion of the neurotic sheath and nerve vessels for the transmission of material; its functional duties cease with the death of the body, but is much more frequently terminated by the broach and forceps of the dentist.

Dental Fallacies.—The same emperical infatuation has retarded the preservative progress of operative dentistry, that has attended the general and special practice of medicine since their first professional inauguration as checks to disease. Yet, from their semi-alliance with the human body, and peculiarities of structure premised in adaptation to functions that required insensibility to force and grinding attrition in contact, the teeth present certain indications necessary to be followed for their preservation in freedom from decay, of which use and cleanliness are the chief. When decayed, and the dentist's service is required for their repair, it would appear legitimate that he should understand the bearings of their relation, and extent of functional reciprocation that they hold, as instruments of service, to the organs of the human system,

in order to secure a successful result to his labors. From the aid of preliminary observations founded upon the experience of self sensation, in comparison with the teeth of his patients, he would be able to detect the cause of structural deficiencies, and from the knowledge obtained would be able to judge correctly of the methods taught for the arrest of decay, and thus, step by step, within the range of self approved security, would make his progress certain. The oyster-like simplicity of formation in structural combination, with well defined uniting lines of demarcation between the nacro-chrystalline enamel, which is free from elasticity, and cementum—which is the ivory of teeth—and possesses kindred affinities, with elasticity and its comparatively non-conducting qualities, acting as an intermediate shield for the protection of the more highly organized dentine which remains in connection with the pulp, the teeth would seem to offer a chart of direction for the reparative art of the dentist bordering upon the infallible. Especially, as there is no reflex functional disturbance to be apprehended through the avenue of formation, except neuralgia from pulp irritation, and inflammation, as the local influences of disease are imparted from alveolar contact of the teeth with the jaws. The pioneer dentists of fifty years ago were obliged to rely chiefly upon their own test experience, as there was little recorded anterior to serve as a guide to their operations. This dearth necessitated extreme caution and practical forethought, so that there were but few missteps that required regretful reconsideration. In filling—the main source of income to the dentist—they used only hand pressure, the more fastidious giving a surface finish with slight touches of the mallet; even the faint jar it caused was a source of dread to the patient; and in cavities that reached the dentine the hand of the operator rarely ventured its use, from fear of ulceration.

As a guard against the excesssve flow of saliva, their sole reliance was placed upon the use of the napkin, and instead of water injected from a syringe, to act as a detersive for the removal of decayed matter, the secretions ejected from the glands served the purpose.

In addition to the primitive cleanliness of the means, the modern dentists, with proclivities for fashionable empiricism, have often expressed in print their wonder at finding the walls of the cavity perfectly free from decay, after having removed a slightly impacted filling of ten or more years' service, to be replaced by a "first-class" substitute, engine welded, within the rubber screen of a coffer-dam. If they had, even by comparative analysis, tested the effect of water in the cavity of a tooth prepared for filling, in contrast with the *peculiar* antiseptic qualities of the various glandular secretions thrown into the mouth for food commixture, they would have found in water the active elements for the continued decay of tooth substance, while in opposition the saliva possesses the innate essentials of retardation. Aside from the constituent resemblance of the gland fluids of the mouth to those of the nacre secretions

of the oyster, the relish the latter affords as the most congenial of carnivorous edibles, is proof presumptive of a natural alliance in the formative and preservative conditions of the teeth. The frequent injection of water into the cavity of a tooth in the preparatory process of excavation must, of necessity, leave an impression of dampness, however careful the operator may be in the use of absorptives and actual heat for evaporation; and as its constituents are the active source of fermentative decomposition in vegetable and animal matter, and of reactive oxidization, in a greater or less degree to mineral, the effects likely to be produced by a metallic substance in contact with diseased dentine can be readily anticipated, in process, by an analytic mind.

Or if his experience has failed to note the impression of water in reaction upon dentine in contact with a metallic filling, in contrast with saliva, the experiment would prove satisfactory to the dentist, and more especially to his patient. The non-conducting properties of saliva in opposition to water can be made apparent by placing a dossil of cotton wet with each, alternately, in the cavity of a sensitive tooth; or by immersing extracted teeth, with the dentine exposed, in saliva and water separately, the contrasted effects can be tested; but the saliva must be free from contamination for the development of its conservative properties. For cleaning the teeth, water is indicated, as it removes adhesive matter from the enamel, and allows the preservative qualities of the saliva to come in direct contact with the surface. We know, from self observation, that when hungry, the odor of cooking food excites, in anticipation of its relish, a flow of saliva, and that gradually, as our appetite becomes appeased, it decreases in proportion, and if eating is persisted in, when the gland stimulation ceases, *as the sure sign of enough*, the teeth become dry and cumbered, and deglutition difficult. If these natural indications of limit in mouth service could be placed within the control of children by education, the personalities of the community would be greatly benefitted in health and comfort, although the physician and dentist might suffer in-pocket. *The Painful and Destructive Fallacy* of engine "plugging" is still more apparent to reasonable judgment and repugnant to natural indications, than the use of water as a deterative agent for removing excavated decayed matter from the dentine-exposed cavity. From the compactness and varied density of the three composite parts that enter into the structural formation of the teeth, the effect of the destructive agencies is different in action on each, but bears no resemblance in either to necrosis or other diseases that affect integument covered bones; yet, as with the chelonia carapace shell protections of the toes and fingers, are extremely liable to infect the bones when subject to ulceration. But if, from fore-knowledge, and as a providence for the retardation of prospective degeneration, the teeth had been designed to afford a season for repentance, it would exceed the constructive power of man to suggest an improvement. Even the carapace nail

defenses of the toes and fingers show a wonderful adaptation of means to ends, in the firm elasticity of their composition and attachment for the effective accomplishment of intention as shields; but, if we consider the service required of the teeth for the healthy prolongation of vitality, their more complex provisions for safety excites in a higher degree our admiration.

Still, with unreason, mans' invention often tends,
Beyond the useful, and in self-destruction ends;
The dentist with lack of reason o'er acts his art
When for engine-mallet he thrusts the jaws apart.

Although the structure of the teeth, and method of adoption, admits of hard usage in the grinding service of their vocation, when slightly diseased the immunity from painful irritation is lessened; but even in superficial cavities from fissure tendency to decay, which penetrate but little below the surface of the cementum, the safe course is to use as little force in excavation and filling as is consistent with thorough preparation for the permanent adjustment of the material used to arrest decay. The causes of decay in teeth must, of necessity, vary in degree, the intensity of irritation, and render them more or less susceptible to external impressions, and the treatment should vary in accordance with structural imperfections and indications of the exciting cause of decomposition. Upon the adoption of this course for the cultivation of reason and judgment depends the dentist's merits for the professional distinction of doctor; but if he regards a tooth cavity as a hole to be filled with gold, welded by the strokes of a machine mallet, and finished up to class rules, heedless of vital alliance and regulation of force, the title of tinker would better distinguish his characteristics of worth. For the development of worth and support of professional dignity, collateral literature should be cultivated as a criterion of thought capacity. A lack of this, the only means of opening to public view the resources of mind, has reduced to the grade of empiricism the educated of the medical profession; as modesty and scorn will withhold their tongues from the cajoleries practiced in self praise by the charlatan.

By the practice of thought discipline to interest, and raise the standard of public intelligence, there will be a mutual reaction for the benefit of each, both in professional and social intercourse, that will prove a source of reliance and stimulus to mental exertion on the part of the dentist. To the "crumb item," condensed, and scrap opinions, is mainly due the diversity of materials and methods adopted in dental practice to obtain uncertain results. For a long period dentists complained that gold balled or curled under the blow of the "plugger," and the gold beaters tried all their metallurgical resources to render it in preparation pure, soft and pliant; but, with their almost perfect success, it was impossible to make it fulfill dental expectations when driven

with the quick blows of their engine trip-hammers against elastic walls of dentine. Then came the wail, that gold-filled lateral cavities having a dentine base and walls in relative proportion to depth, would decay around the filling, "no matter how well condensed it might be;" and, without the slightest reference to cause, various suggestions were offered to remedy the defect; and at the present time "first-class fillings" of the description frequently have a gutta-percha base, with side patches of amalgam, all the work of the same dentist. Without other knowledge than an intuitive perception of physics, the cause should have been apparent from the demonstration; the gold "balling" and curling upward around the point of the "plugger" from the quick blows in recoil, bespoke with mathematical certainty the impossibility of making semi-plastic material adapt itself in close contact with the elastic walls by the process.

In second consideration, his acquired knowledge should have taught him that organized dentine, when irritated, became an erectile tissue, and if inflammation and ulceration of the pulp did not succeed, shrinkage would, leaving an inevitable space between his "first-class filling" and walls of the cavities. If, in addition, he would examine his engine work with a critical eye, aided by magnifying power, he would discover in the grade closeness of adaptation the varied density of substance that enters into the composition of the teeth, from the clear lines of impressed demarcation caused by the degrees of structural elasticity between the nacre-enamel, cementum and dentine. A farther investigation of the connection existing between the dentine and pulp would enable him to calculate the probable chances of the latter's inflammation and ulceration from the effects of engine concussion.

It is well known that the pearl oyster (*Aviculidæ*) can detect the first attack of his enemy the teredo aviculæ upon his shell, which gives him time to deposit and unite an effectual wall of pearl-nacre to intercept the course of its bore, and as it is impenetrable to the forcep cutting jaws of this sea worm, it forms a safe barrier in the direct line of its intended entrance; but as foiled appetite begets a corresponding sagacity to overcome obstacles opposed to its gratification, in every grade of animal life, from the polypodo-vegetable to man, the boarer commences a sinuous course beneath the soft phosphate on the external surface of its nacre attachment, until he finds a thin and penetrable portion of the shell, through which he makes a quick entrance and secures his prey. Then the oyster, as in the death flurry of the whale, looses all command over its resources of plastic defence, and while struggling in death agonies from the gnawings of its voracious foe, yields them, with its life, "contoured" into pearls the most beautiful symbols of soul existence that it is possible to conceive, with the sole exception of a comely woman's teeth when they reflect in purity the "angelic" mind of their possessor. This flurry was suggested in question whether the pulps of

human teeth have their oyster prototype's power of resisting "bacilla", and other vermiform species of invasion with reconstructive dentine? There is certainly abundant testimony in proof that, with proper treatment, the excretive functions of the pulp can be revived in sufficient degree for the formation of a protective shield of dentine, but with a nearer resemblance to the cancellated structure of the jaw than the original, showing that there had been a change in the elementary secretions from disease, or that after the second set was completed the pulp adapted its functions to the osseous source of supply. Sixty years ago Dr. Harwood, of Boston, recommended the use of cotton saturated in a melted combination of bayberry wax, two parts, to one each of creosote and oil of cloves, as a cap covering for exposed pulps; and to this and similar applications we are indebted for the knowledge that with judicious protection they can form a substitute shield with the characteristics of dentine. But after the plunge of an engine bur, directed by careless hands, into the substance of a pulp, there is but a small chance for its salvation, although slight wounds from the excavator heal readily. At the present day, within the attesting scope of a few correspondents, there are upwards of five hundred hand manipulated gold fillings, having a broad dentine base in near approach to the pulp, with various degrees of finish, from ragged to smooth, that have a painless service date ranging from twenty to fifty years; while in comparison, they acknowledge that there are but few engine-filled lateral cavities with a dentine base and walls that have eked out, with patching, a term of ten years. The invention and introduction of the Snow and Lewis automatic surface finishing hand instrument was a serviceable improvement over the hand mallet, inasmuch that it left a free hand to the operator, but its stroke was labored, and lacked in other essentials that would render it safe to use as an impactor within the boundaries of diseased dentine; yet, by a large proportion of those who express their judgment, unbiased by the vagaries of advertising fashion, it is considered the best aid of its kind in advance of hand pressure.

"*Pivoting Teeth*" with wood demonstrates clearly the danger that is to be apprehended from the jar of the mallet; for, with the custom of striking home to its bearings a tooth with a close fitting pivot, ulceration of the root and alveolar caries were first introduced as an attendant upon the inconsiderate operations of the dentist. It was an expressed source of self-gratulation to Dr. Harwood, that never, to his knowledge, had a patient of his suffered from having a pivot tooth set, and he justly attributed the cause to his method. He used second-growth walnut wood, and prepared the sizes to suit by striking them through the grade holes in a screw plate, then immersed them in tincture muriate of iron until the pores were completely penetrated, and after they were perfectly dried with slow, artificial heat, subjected them to the action of equal parts of creosote and oil of cloves. In preparing a pivot, he obtained an exact

fit, so that a junction could be obtained without other force than the use of his fingers, and in two instances reported, the teeth were firmly retained twenty years without being re-set. In none of the adjunct processes of the dental art, has there been so near an approach to legitimate perfection as in the manufacture of artificial teeth, by those who devote their attention to it as a specialty; but as in other departments, vaunts, gold medals, and fair diplomas, are not to be trusted as truthful tests of superior excellence.

Gold, and other fillings, although useful in the retardation of decay, are but blots that deface the architectural beauty of the mouth, and should act as beacons of warning to the human family, that the gratification of abnormal appetites begets like heedless passions, which entail in conception upon the resistless embryo, not only the structural defects of the teeth and their deformities, which have given birth to the dental profession, but a predisposition to all the diseases which affect the body corporate, which, as guardians of the life sustaining portal, they act in the capacity of preparatory indexes.

Womans' Fitness for the Dental Profession.—There is but little doubt that with cultivation woman could develop all the essentials required for successful dental practitioners. But would the vocation prove congenial to the evident designs of nature instituted to govern the mutual division of labor responsibilities between the sexes? Already in America we observe the rapid ingrowth of familiarity between the sexes, which is the offspring of foreign inoculation bred from a lack of appropriate labor distinctions. Labor is not only a democratic equalizer, but it would prove a brutalizing source of degradation to the weaker sex if established upon a common grade. The proof of this axiom is demonstrated in the family relations of the German peasantry, both in the mind and matter of their personalities;—if the former can yield more than the mere supposition of its existence, as an attribute of mankind, rather than an effect from its actual impression. With the few ingrafts of women into professional life which have been accomplished, we can feel and foresee with its full realization, the utter annihilation of all the ideal charms of mother and home, the centres of an indwelling and enduring affection which clings to our memories as the ivy of hope to the latest thought and breath of life.

But as experience is the best practical and least heeded teacher of life, an example as an exception to common indifference will prove instructive, even if it lacks the full influence of persuasion.

Extracts from a Letter of Miss ———, to her Dental Instructor :

* * * RUSSIA, * *

MY DEAR AND HONORED TEACHER:—

I will not attempt to express the emotions of gratitude the reception of your letter caused, or the feelings of thankfulness for the strength which enabled me to overcome my prejudices against adopting an as-

sumed name, as you advised, while practicing abroad a profession which necessity forced upon me as a choice. Above all the influence of your persuasion which made me limit my practice to the sole treatment of women and children. From novelty, as I am the first female dentist that ever practiced in the city, and some merit I hope, for the honor of your instruction, my success in every respect, has by far exceeded the utmost stretch of my imagination. My hands and arms gain daily in strength and skillful expertness in the use of my instruments for the adaptation of material for the preservation of natural, and supply of artificial, teeth. I have already two female students, or apprentices, of good families, and shall soon require the services of a third. But with all the pleasure that attends success, I cannot forget the ideal refinement of a home vocation, which is the heaven of hope to a pure woman. As you advised, I have cultivated a dignified, but kindly disposed reticence, upon all subjects foreign to my profession, during "office hours" (how odd the term sounds!), but have formed some acquaintances which, when tested, may eventuate in friendship. The people are kindly disposed, but, according to our standard, lack delicacy and refinement. Visiting the Princess C. a few evenings ago, her husband, first in joke, but afterwards in earnest, tried to induce me to receive him as a patient, and I anticipate, from his manner of treating my method of refusal, future annoyance from others. * * * *

You question the cause of the Russians' intolerance of the Jews; and seem to have had your sympathies aroused in their favor, as if they were blameless of provocation. But from what I have seen of them, I do not feel disposed to discredit the reports which charge them with acts that would put to shame those of their father Abraham, when he took his wife Sarah to Egypt and bartered her for service to the King of Gerar and others, under the pretence that she was his sister or daughter.

The Russians, or Sclavs, are not over-scrupulous in taxing self restraint for the preservation of virtue; but it appears that even with them there is a limit to shameless prostitution that will barter the purity of daughters for a price in gold. All seem to rejoice in their forced exile, and wonder that the puritans of Yankee-land should receive them with sympathy. * * * *

I have discovered that the natural preference of Russian women is for male dentists, and the husbands *vice versa*, a choice that I am afraid will mar the prospects of female dental operators of my predilections throughout the civilized world; but I hope the novelty will last long enough to purchase my selfish desire for liberty. * * *

There is one harbinger of good omen that promises a happy recompense for the minor evils of my exile; in visiting association the conversation is often abruptly turned from general topics into a semi-philosophic discussion of the influences which most tend to enoble and elevate society, in the scale of mutual confidence and sympathy. Of course, with natural egotism pe-

culiar to the sex, it was generally conceded that the cultivated womans' refinement and sincerity were influences absolutely necessary for the accomplishment of any good purpose; and as Prince C—— aptly remarked, the predominating lack of those qualities gave the direct negative of brutality, which in reaction recoiled upon woman—as the conservative medium of example—with a downward power for her debasement; in illustration he cited the elevating influence of the English womans' dignified sincerity upon the national characteristics, and in contrast from the opposite cause, German boorishness and vulgarity. This, and incidents of like import, afford me the tacit assurance of a gratifying appreciation, derived from exemplified impression; and as it is the hope of my heart, I have no fear, as I am certain it will increase in power of expression from an approval that intimates the desire of adoption. * * * * * *

If all the females who select the profession of dentistry as the means of gaining a livelihood, from natural choice or that of necessity, should possess the quick perception and natural ability indicated in the above letter, we might hope that the influence of their exertions would tend to the discovery of a dental laboratory within themselves, which might, with judicious co-operation on the part of male dentists, be made to reproduce natural sets of teeth without blemish, possessed of constituent materials derived from a healthy source, that would insure uniformity and life-long endurance. For the consummation of a result so desirable, it will, of course, be necessary to make the conceptive public *feel* that the transgression of nature's laws brings immediate suffering to the transgressor; as selfish gratification has become so predominant in democratic expression, a father of the herd, would scarcely abate a drink, cigar, or quid of tobacco to save his prospective child from the misery which their use, and like vitiated habits, are certain to entail. There was a time within the historical period of memories recollection, when the women of the United States, without exception, would have esteemed it an insult for a man with a cigar or pipe in his mouth to offer his company to them on the street; at that period, the necessity for the service of a dentist was in so little demand his professional existence was confined to large cities. Until the introduction of lager beer and votaries to its corner grocery chapels of dispensation, whose ancestors had for centuries, in transmission, been inured to its degrading and stupefying effects, which from incorporation they considered a constituent part of themselves and entitled to citizenship, the teeth of the native Americans in regularity and freedom from decay bore testimony to the healthy simplicity of their habits. Colonization may be effected in a variety of ways, quite as repugnant to our natural feelings of honor and justice as when enforced by direct usurpation; and an indiscriminating toleration of emigrants, who bring with them habits of debasement sure to prove contagious and destructive to all the elements of kindly affec-

tion and refinement in association, as well as to the rational preservation of physical integrity, should at least be held in quarantine from citizenship, as examples of reproof, until they had given practical demonstration of a disposition to adapt themselves to the healthy regime of the country. The cholera and small-pox create alarm from epidemic invasion, but when the hitherto mysterious cause is removed, they leave in renewal a healthy impression; but the lager beer sot, and users of tobacco, are chronic examples of leprous habits, who deny the same in disposition nature's privilege of a free atmosphere, and by breeding contagion, colonize its source, and deprive the well disposed of sustenance designed for the normal development of mind and body.

Absorptive Preservation of Decayed Teeth may be effected by cotton or Chinese rice paper, frequently renewed in the cavity, without antiseptic addition, other than that peculiar to the retentive material and fluids of the glands. Numerous instances are cited—with proof authentication—in which exposed pulps had been treated by this simple method,—through fear from dental experience,—and preserved without pain, but with evident improvement in structural condition, for noted periods exceeding twenty years, the recuperative power of the pulps having supplied a substitute for, if not identical with, the original elements of dentine. As density adds to the conductive power of any material, the impaction should be regulated according to the sensitiveness of the exposed dentine and pulp; at first, the pressure should be just sufficient for the retention of the pledget, and if cautiously introduced, will, in a majority of cases, abate pain, and absorb decayed matter from the inner surface of the cavity, as well as the food source of irritation from without. As timid persons usually prefer to trust to their own sense of feeling in the adjustment of remedial substances, a little instruction will enable them to accomplish it effectually; and dentists of clear judgment and long experience claim that the adoption of this method, is more satisfactory, in favorable cavities, for relieving pain and preparing the exposed dentine for contact with filling, than the free use of narcotico, as in reaction they often become irritants, and by causing expansion, make it necessary to remove the “plug” to prevent ulceration and alveolar abscess.

It has been clearly established by test observation and comparison, that diseased dentine which has been treated by the various obtunding preparations used by the dentist, and water for washing out the cavity, retains the moisture for months after extraction, while in those extracted without treatment the evaporation is much more rapid. As a natural sequence to cause and counter effect, engine-welded gold admits of no absorptive reaction, and, but for the inevitable space from the shrinkage of the dentine, after the irritation has subsided, few would escape the penalty of ulceration. Another effect that especially tends to weaken the cohesive tenacity of both cementum and enamel, is their deprivation

of the peculiar vitality supplied from the dentine, by the unyielding pressure of the welded gold at the junction of each with the other, producing strangulation that prevents its transmission, causing them to crumble from attrition in mastication. The impression generally prevails that the absorptive tendency is from the mouth inward, but the contrary may be proved by testing the outer and inner surface of a filling, or pledget of cotton which has been for sometime retained in the cavity of a tooth, as the latter, if closely impacted, will be found comparatively dry where it came in contact with the walls of the cavity, the glairy penetration of the saliva showing distinct traces of demarcation, but a few lines in depth from the surface.

PLATINUM AS A BASE.

I would like to draw the attention of the profession to the usefulness of Platinum plate as a base for teeth, in the place of gold—not in the form of continuous gum, but as a plate for soldered single teeth.

Taking all conditions of the mouth into consideration, Platinum base for artificial teeth makes the most comfortable plate that can be used. Its non-oxydizeable quality gives it a therapeutic value. If the gum has been irritated by wearing a rubber plate, the substitution of Platinum seems to exert a healing influence on the gum; in a comparatively short time a change can be seen, the inflammation and puffiness gradually disappears, and the gum becomes firmer and more healthy.

Irridio-Platinum can be used two sizes thinner and still have the same strength as gold plate; its thermal changes are, consequently, quicker and more complete. Another advantage which commends it to patients, is its clean look, not changing color even in the foulest mouths, never becoming so disgusting as other plates.

There are several classes of patients to whom Irridio-Platinum is peculiarly adapted. Invalids are very grateful to have a plate that does not shock the feelings when taken from the mouth to be cleaned. Another class who are so exceedingly particular in cleaning and brushing, that they frequently brush holes through the plate. I have never seen a Platinum plate worn through by friction by this class of patients; and the very careless are pleased with it, as it takes less time to keep them in presentable order than any other base.

The only drawback to its more general use is the difficulty of working it and the cost; the clippings and filings are nearly a dead loss, making the cost nearly the same as gold.

Platinum with a small percentage of Iridium, I have found to be the most useful, and is a trifle harder than pure Platinum. It requires a bright red heat to anneal it, then is soft enough to swage over a metal die; Babbitt's metal makes the best die for it. The greatest trouble in

working Irridio-Platinum is the soldering process. If a low fusing solder be used, the two pieces of metal can be separated very easily.

The first piece of work I made of this kind fell to pieces the first week, causing considerable amusement to the patient. If 18 karat gold solder be used, and the plate roughened by filing or grinding, the different parts will be firmly united together. Another trouble arises from the tendency of the solder to spread over the plate just where you don't want it, but this can be controlled to its proper limits by painting the plate with chalk and water previous to heating up the work for soldering.

As Irridio-Platinum is tougher and more tenacious than 18 karat gold, it is more difficult to smooth and polish, but finally yields to persistent effort, and makes a very presentable appearance.

W. R. HALL.

COSMOLINE IN ITS RELATIONS TO DENTAL THERAPEUTICS.

BY A. B. HARROWER, D.D.S., PHILADELPHIA, PA.

Petrolatum, or petroleum ointment of the U. S. Pharmacopœia, is a term covering the various substances known as vaseline, plain cosmoline, cosmoline sub-cerate, and cosmoline cerate.

The usual sources from which petrolatum is obtained are the crude petroleum oils, from which the lighter portions have been removed by distillation, and the residual substances found in the large oil storage-tanks and in the stills after petroleum distillations in vacuo. The process of obtaining the cosmoline from the reduced oils, as the heavy oils remaining after distillation are termed, consists in distilling them over at a higher temperature than previously used, and then filtering the distillate, at a temperature of from 110° to 130° F., through animal charcoal. The first portions of the filtrate are used for the cosmoline, and are, if necessary, given the proper consistence by the addition of pure paraffin.

The Pharmacopœia describes petrolatum as a "yellowish or yellow fat-like mass, transparent in thin layers, more or less fluorescent, especially when melted, completely amorphous, tasteless and odorless, or giving off, at most, a faint petroleum odor when heated, and having a neutral reaction." It will be found quite insoluble in either hot or cold water, and is but slightly affected by cold alcohol, but in about 64 parts of boiling alcohol it will dissolve. It is readily soluble in ether, chloroform, the fixed and volatile oils, and in benzol, benzine, etc. In composition it is a hydro-carbon. Its specific gravity varies from .835 to .860.

Petroleol, or *fluid* cosmoline, is the product of a distillation at a lower temperature than that used in the manufacture of cosmoline proper,

the process otherwise being similar. In chemical composition, action in the presence of solvents, etc., it so nearly resembles petrolatum as to render any separate description unnecessary.

Fluid cosmoline is an oleaginous substance, remaining liquid at as low a temperature as 32° F., while plain cosmoline, cosmoline sub-cerate and cerate are ointments, differing in consistence, and remaining firm at the temperatures of 100° , 110° and 120° F. respectively.

All the varieties of cosmoline named above are bland, unirritating substances, not liable to become rancid or decomposed, and, therefore, singularly adapted for use as vehicles or for occupying spaces which should be filled with some soft material, easily removable, non-irritant, insoluble, and incapable of decomposition under the surrounding conditions.

It was the possession of the foregoing attributes which led to some experimentation with cosmoline and its consequent employment as an excipient in iodoform, arsenical and inspissated canal pastes, and for the saturation of cotton canal dressings.

In the previous employment of iodoform as an antiseptic in the treatment of pulpless teeth, the formula adopted by Prof. Flagg, after years of experiment and use, was the same as that given in the *Dental Cosmos* for November, 1883 (p. 616), namely:

℞.—Iodoform, 30 grs.
Tannic acid, 3 "
Glycerin, 15 drops.

(NOTE.—The 10 *grains* of iodoform as given in the former recipe was a copyist's error; it should have been 30 *grains*.)

This mixture, while comparatively free from the disagreeable odor of iodoform,—and rendered entirely so by the addition of a part of a drop of oil of cinnamon,—had yet the disadvantages of a soluble vehicle and the formation of ferrous tannate when brought in contact with steel probes, etc. Although these objections were not of pressing moment, yet there seemed to be room for improvement, and after some experimentation I settled upon the following formula as meeting all the indications, both theoretical and practical:

℞.—Iodoform, crystals, 20 grs.
Fluid cosmoline, 10 drops,
Oil of cinnamon, about $\frac{1}{4}$ of a drop.*

Mull the iodoform to a *fine* flour in a small mortar: add the cosmoline and cinnamon, and mix thoroughly.

The resulting mixture will be a smooth paste, of a pale yellow color, having a slight odor of bitter almond or cinnamon, and a consistence which permits of its being worked to any part of a root-canal accessible to a fine probe. It is unalterable, insoluble, easy of manipulation,

*Excess in the quantity of cinnamon tends to cause a change of color and consistence in the paste, detracting from its appearance and working qualities.

does not taint the atmosphere of the office with the odor of iodoform, and in fact fulfills all the requirements of an iodoform canal dressing.

This paste has been in daily use in our office for nearly a year, and has steadily gained in favor. It is also employed by upwards of a hundred gentlemen, and, so far as can be ascertained, with entire satisfaction.

When it is desired to use iodoform as a pulp-capper, etc., the requisite consistence is easily obtained by substituting for the fluid cosmoline in the preceding formula a sufficient quantity of plain cosmoline, cerate, or sub-cerate.

Few who have used arsenical paste have escaped the annoyance consequent upon the settling of the arsenic and the stirring necessitated by this separation. Every time the mixture is used it must be stirred, and this stirring not only unpleasantly soils any instrument used in the process, but imperfectly mixes the different strata. A much more elegant preparation, perfectly smooth, entirely free from the objections previously mentioned, and which permits of a much more accurate placing of an arsenical application, can be obtained by mixing with ordinary arsenical paste a sufficient quantity of plain cosmoline or cosmoline cerate.

The following formula more nearly fulfill the requirements of a perfect arsenical paste than anything I have seen :

1. \mathcal{R} .—Arsenious acid, 1 part.
Acetate morphia, 2 parts.
Plain cosmoline, q. s. to make a paste of the desired consistence.
2. \mathcal{R} .—Arsenious acid, 5 grs.
Acetate morphia, 10 "
Fluid cosmoline, 18 drops.

In both cases mix thoroughly.

It will be noted in these two cases that carbolic acid, as a component, is omitted. I have failed to find any *theoretical* ground for its retention, and, so far as used, the two preceding formulæ have offered no practical objections against its abandonment.

The formula for the inspissated canal paste used by Prof. Flagg, during the past five years, for filling the canals of lower and inaccessible canals of upper teeth was :

\mathcal{R} .—Sulphite lime, } aa.
Acetate morphia, }
Glycerin, q. s.

This, though a soothing and antiseptic mixture, was yet somewhat soluble, and in order to effectually obviate this objection fluid cosmoline was substituted for the glycerin. The preparation in use at present, and for nearly a year past, is :

\mathcal{R} .—Sulphite lime, 12 grs.
Acetate morphia, 4 "
Fluid cosmoline, 24 to 30 drops.

Mix well on a slab.

Fluid cosmoline may be advantageously substituted for the glycerin, oil of cloves, carbolic acid, etc., used for saturating cotton canal dressings. Requiring for its evaporation a temperature of over 300° F., and having no affinity for oxygen or moisture, it may be depended on as a *permanent* dressing; and at the same time it is somewhat antiseptic and absolutely non-irritant. And as, in addition to these properties, it readily holds any desired mendicament, I consider it, in this connection, as without a rival.

These varied applications of cosmoline seem to constitute a modification of the prevailing dental therapeutics so important as to command the attention of every progressive practitioner.—*Dental Cosmos*.

DISCORD —

As a word, conveys to the ear, of itself, a lack of harmony in the elements of sound, and has been adopted, from the earliest date, to express in the relations of life the crudities natural to uncultivated instinct, which oppose and disturb the manifestations of refined sentiment and sympathy in society association. From the sympathies which should be invoked by his attendance upon the sick, it would seem consistent and natural for the physician to seek consolation from his professional associates when subjected to unusual difficulties, and be able to place the utmost confidence in the sincerity of their professed friendly reciprocations. But that the contrary has prevailed we have not only historical attestation, but present proof, that envious rivalry has uprooted all the legitimate elements of concord which should harmonize the individual disposition of the physician to deal openly and frankly with his associates. Since the organs and tissues of the body have been mapped out in the human corporation for the remedial treatment of specialists, and their pharmaceutical and other aid-contributing satellites, the causes of discord have multiplied, from border invasion and distinctive jealousies founded upon the importance of the parts treated to the vital economy. As an example, there has been an active phase of mouth irruption in progress ever since the inauguration of a dental department in the University of California, which culminated last year when the successful and unsuccessful aspirants for professional honors met in session as members of the State Wigwam of Dentists.

The exciting cause for the first defiant show of teeth, was the denial by the successful professors of Dr. W. J. Youngers originality in the conception of a cock's comb as the preserving viaticum of tooth membrane vitality while in transit for another mouth. But evidently, through ignorance of its existence, did not refer to the preserved specimen in the Hunterian Museum implanted in a hen's comb. The accused plagiarist retorted with some allusion to the snowy whiteness of

his honor in comparison with the color of the commodity possessed by his opponents, which caused them to secede, as members, from the State Society. The roosterationist, not content with their discomfort, mustered his partisans for the session of the current year, for the accomplishment of the strategic movement set forth in the following copy of his Resolve, or summons to the regents for the unconditional surrender of their powers to the dictation of the State Society :

“*Resolved*, That a committee of three be appointed to *confer* with the Regents of the State University for the purpose of securing a re-organization of the Dental Department of that institution in such a manner that this association can co-operate with it, and make it what it should be, the great fountain-head of dental knowledge on this coast.”

Much to their honor, two appointed to serve with the author of the summons, declined. The resolve bespeaks for itself the originator's motive for the displacement of his enemies from their advertising stronghold, as well as modesty of spirit from the style of dictation. According to the report of students, the present professors are unusually active in forwarding the interests of their specialities, and it certainly would be an act of temerity in the regents to adopt the example of the Italian count who was well, wished to be better, took physic and died, for with the forecast of the predesigned successors, allowing that they possessed the literary ability to sustain the dignity of their role, the change would be sure to inaugurate the spirit of revolutionary dissension and death to the prosperity of the department. This, of course, is a naturalistic prophesy founded upon the faculty constituents of the genus developed in society association.

A week's observation of mankind in the vocations and recreations of city life, should convince a discerning mind that the motive power of humanity is the embodiment of the organic and instinctive faculties of all the species of animal life in a single individual form ; and if the habits of a representative of the genus homo gains the ascendancy, they must naturally conform to those of the specie model from which they are derived as predominant in his composition. The ass has become proverbial for his patient stupidity, the mule hybrid for his vicious stupidity, and the barnyard cock for his vain-glorious combinations of stupidity, etc. If either of these qualities gain predominance in the compound composition of man, the manifestation is designated with the name stigma of specie source, as self-admitted by the Dogberry of Shakespeare. But, when his instinctive faculties are kept in good subjection, he gains the well-merited reputation of possessing a well-disposed instinct ; and if versed in the higher acquired attributes, a well-balanced mind or judgment. As an example, for the practical analysis of isolated specie instinct, we will take the barnyard cock, whose comb is supplied with blood cells of sufficient capacity to form an erectile tissue, which rises or becomes depressed from sensational excitement ;

and as his natural instincts are limited and sensuous, the small skull enclosed sensorium is simply a terminal expansion of the spinal cord devoted to the functional promptings of sustenance, while the external lobes of the comb serve, in a limited capacity, as functional substitutes for the cerebellum, and the gills dependent below the beak as the vocalizers of sound, which give stereotyped expression to his harem calls, night salutations and clarion notes of defiance, or the superabundant overflow of his vanity. The human coxcomb, or pretender to knowledge and accomplishments he does not possess, although his *crista galli* is, in anatomical demonstration, an osseous resemblance to the cock's, within the confines of the skull, he possesses in brain substitution all the real attributes of his instinctive compeer; and, as like to like inclines, his discoveries would tend to the earth of cattle kind, which, as with his congener, he uses for cajoling the dame partlet members of his harem and stray pullets from his neighbors' seraglios. Indeed, he is as void of sympathy and gratitude, and all the attributes that tend to elevate and ennoble an existence independent of the grubbing instincts of selfish gratification, as the barnyard autocrat.

“But,” the partisan cries, “if in us there’s an instinctive spice
Of the cock and ass, *et cetera*, why call the use a vice?”
Then Reason rose—Wisdom’s advocate—and preferred the claim
That excess, and moderation in use, were not the same!

As a deductive conclusion of this analytical dissertation, it is apparent from the proceedings of the California State Dental Society, that, like Don Quixote, a body of professional men may mistake a windmill that grinds the grist of others, for a giant. From present prestiges in forecast of disposition, on the part of recipients, Dr. Cogswell, who endowed the dental department, would have received, while living, more grateful satisfaction, and, after death, more memorial regrets, if he had donated the fund for the purchase and distribution of badgers hair tooth brushes, as a suitable accompaniment to his water fountains, to serve as a practical hint that the prevention of decay in teeth is better than cure.

EILIMS.

BEER-DRINKING AND HEART DISEASE.

The bodily ills that come of the abuse of drink are so many and so dire that it would appear almost impossible to add to the dreary catalogue of them. Yet BOLLINGER, at a recent meeting of the *Arztlichen Verein*, in Munich, called attention to the part played by beer-drinking in the causation of certain forms of heart disease, a subject which, if it be not altogether new to some of our readers, has certainly not been generally understood.

Most writers, it is true, speak very guardedly upon the subject of idiopathic hypertrophy and dilatation of the heart, but Seitz and others have adduced an abundance of evidence to prove that cases in which the fatal termination is directly due to this form of cardiac disease are of frequent occurrence. The records of the Pathological Institute of Munich show that idiopathic hypertrophy of the heart is of much more common occurrence in that city than elsewhere. The observations of several local pathologists confirm this statement. The figures are not without interest. Spatz found among 638 men no less than 55 affected with so-called myocarditis. Among 433 women, there were 23 cases. Among 290 men between the ages of thirty and sixty years were 41 cases of myocarditis, or 14 per cent. Among 144 women at the same period of life, only 10, or 7 per cent., were affected. Hermann's cases showed among 305 sections, 49 examples of plethora-heart as the cause of death in men, while only 3 occurred in women.

Von Buhl regarded these hypertrophies of the heart without discoverable cause, such as valvular lesion or arterial sclerosis, as the result and product of a chronic myocarditis, which usually ended fatally in consequence of fatty degeneration of the muscle. Under the influence of this teaching, and because the patients, as a rule, enter the hospital and die with symptoms of failure of the heart, this form of hypertrophy came to be generally regarded in Munich as the result of an inflammatory process. Bollinger, finding, in most of the cases, no anatomical evidences of inflammation, and just as seldom fatty degeneration, cannot accept this view, and regards the hypertrophy as simple, or idiopathic. At his suggestion, Schmidbauer undertook, by means of exact observations, to establish the extent of this epidemic of cardiac hypertrophy in Munich upon a statistical basis, and to discover its cause. In 1000 post-mortem examinations there were 46 cases, 32 men, 14 women, of undoubted idiopathic hypertrophy of the heart, as the cause of death. As an associated condition—not as the cause of death—idiopathic hypertrophy of the heart was found in 33 other cases, 23 men, 10 women. All cases of enlargement of the heart due to lesions of the valves, or disturbances in the pulmonary circulation, or associated with arterial sclerosis, or granular atrophy of the kidneys, were of course excluded. Certain of these cases of idiopathic hypertrophy of the heart were, perhaps, to be accounted for by prolonged excessive muscular effort and bodily strain. But the greater number, as was determined by carefully worked-out personal investigation, particularly among suicides, were explicable only by habitual excesses in beer-drinking in connection with a true plethora, the existence of which has, however been of late denied by a majority of physiologists and pathologists.

The habitual consumption of beer in excessive quantities tends to hypertrophy by the direct action of alcohol upon the heart, by the enormous amount of fluid introduced into the body, and by the easily assim-

ilated nutritive constituents of the beer itself. Furthermore, such habits are often associated with great bodily activity and an at least relatively luxurious manner of life. The average weight of the normal heart in men is relatively greater in Munich than elsewhere, a fact, without doubt, dependent upon the excessive consumption of beer in that city. The characteristic changes in the form of hypertrophy under consideration consist in the participation of both sides of the heart, and in an enormous increase in the volume of the primitive muscular elements, with enlargement of the nuclei. Whether or not actual numerical increase in the muscular fibres takes place cannot be known.

Many individuals addicted to such excesses attain an advanced age notwithstanding cardiac hypertrophy, by reason of constitutional peculiarities, an active open-air life, or an enforced moderation, but the greater number perish after brief illness with symptoms of cardiac failure. At the post-mortem examination are discovered moderate dropsy, pulmonary œdema, brown induration of the lungs, bronchitis, congestion of the lungs, liver, spleen, kidneys, and other organs. Fatty degeneration of the muscular wall of the heart is absent in most of these cases, and death must, in the absence of adequate anatomical lesions, be looked upon as due to paralysis of the cardiac nerves and ganglia.

The condition of such subjects not rarely amounts to a true plethora of the most typical kind, such as is seen among the drivers of beer wagons and workers in breweries in this country.

The frequency of idiopathic hypertrophy of the heart in men, in whom it is apt to prove fatal in the very prime of life, is in strong contrast with its infrequency among women. The latter also suffer from less pronounced forms of the affection.

It is interesting to note that while the average amount of beer consumed during the year 1882 elsewhere in Germany ranged, in different districts, from 54 to 186 litres for each person, in Bavaria it reached 233 litres, and in Munich 432.

These facts constitute an important contribution to the subject of the non-valvular affections of the heart, and are, from their obvious bearings and the favorable circumstances under which they have been studied, of great value in their relations to practical hygiene. The excesses in beer common in some parts of Germany are rare in the New World, but that such excesses are attended by a direct and grave danger, hitherto little suspected, should be generally understood. It is unfortunately a sermon little likely to reach or to be heeded by those to whom its lessons would be of greatest use.—*Medical News*.

CONTINUOUS-GUM FACINGS.

“History repeats itself” is an adage, it would seem, more often demonstrated in dentistry than elsewhere. Twenty years ago Dr. John C. Fuller, of Chicago, obtained a patent for what he called “Combina-

tion Work," or continuous-gum facings upon rubber plates. As it was well known by many of the profession that such work had been made for several years, in various places, an article was prepared for the *People's Dental Journal*, published by myself, containing the statements of eight dentists, well known to the profession, to the effect that they had made the work from two to eight years previous, and had abandoned it as worthless; and so did Dr. Fuller soon after, and so will any dentist who uses it to any extent for a year. It has recently come to the front again, by the way of England, where it has been brought out in order to make an increased sale for the "Gas Furnace."

What are the objections to it? In the first place, in many instances the flexibility of the rubber base will cause extensive fractures in the porcelain; and, next, when from any cause it is broken,—even a single tooth to be replaced,—the work must be taken to pieces, the continuous-gum repaired, and a new rubber plate made! A rather annoying and expensive repairing job. Most dentists would prefer to make a new rubber plate, minus the facings. It is far better to give your patients straight work, rubber, gold, or continuous-gum; and especially, if the latter, there should be no pains spared to make it as strong and as perfect as possible, for when this is done your patient has a denture that no "combination" will replace.—HASKELL, *Chicago*.—*Dental Cosmos*.

DENTAL SOCIETIES.

NORTHWESTERN DENTAL ASSOCIATION.

The Northwestern Dental Association will meet in Grand Forks, Dakota, July 22, 1884, at 10 o'clock A.M.

S. J. HILL, *Secretary*,
Fargo, Dakota.

MEETING OF DELEGATES.

Delegates to the National Dental Association, and others who may act in a representative capacity, will meet in Washington City, July 22, 1884, at the Ebbitt House, where reduced rates have been made. Reduced railroad rates may be obtained by unity of action on the part of those who will attend, from States or sections.

Everything indicates a large meeting for organization. Enough States have already elected delegates to insure a good attendance and a profitable meeting. The acceptability of the plan has been shown by the large number of favorable responses from every section of the United States.

B. H. CATCHING, *Correspondent*,
Atlanta, Ga.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The second annual meeting of the National Association of Dental Examiners will be held at Saratoga Springs, N. Y., on Friday evening, August 8, 1884.

All boards of examiners are earnestly asked to send representatives to this meeting, as matters of great importance are expected to be brought before it.

GEO. H. CUSHING, *Secretary*,
34 Monroe St., Chicago, Ill.

AMERICAN DENTAL ASSOCIATION.

The twenty-fourth annual meeting of the American Dental Association will be held at Saratoga Springs, N. Y., commencing on Tuesday, August 5, 1884, at 10 A.M.

GEO. H. CUSHING, *Recording Secretary*,
34 Monroe St., Chicago, Ill.

The American Dental Association meeting at Saratoga will hold its Sessions in the Supreme Court Chamber of the Town Hall. Arrangements have been made for the usual reduction in railroad rates to delegates. No reduction in hotel rates has been secured. The terms vary from \$2.00 per day in boarding houses to \$5.00 in the largest hotels. Delegates can secure rooms by writing (as long in advance as possible) to Dr. C. F. Rich, of the Committee of Arrangements, Saratoga.

M. L. RHEIN, *Chairman Local Committee of Arrangements*,
No. 7 West Thirty-eighth St., New York City.

PENNSYLVANIA STATE DENTAL SOCIETY.

The sixteenth annual session of the Pennsylvania State Dental Society will be held at Wilkesbarre, Pa., commencing July 29, 1884, at 10 A.M., the sessions continuing three days.

The Wyoming Valley Hotel, at which the Society meets, will accommodate 300 guests. Rates have been reduced from \$3.50 to \$2.50 per day to delegates and their families. Excursion rates over the following roads:—The Lehigh Valley will sell to Wilkesbarre, without special order; the Bloomsburg division of Delaware, Lackawanna and Western will sell regular excursion tickets from all points on the line; the Philadelphia and Reading, and Pennsylvania and divisions, will sell *special* tickets over their lines, orders for which (or other information) can be obtained, by addressing

W. H. FUNDENBERG,
Corresponding Secretary Pennsylvania State Dental Society
No. 958 Penn Avenue, Pittsburgh, Pa.

THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

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NEURASTHENIA.

BY L. ASHLEY FAUGHT, D.D.S.

A glance at the human frame, performing its thousand and one varied actions, will leave the impression that it is one mass of flesh; but more minute examination shows that, in addition to the muscles, there are three distinct forms of tissue,—bones, blood-vessels and nerves. Each of these, when dissected out by itself, assumes, in a modified manner, the exact outline of the external appearance of man. It is the combination of these four distinct systems of matter that contributes to the support, nourishment, and healthy action of the fleshy matrix. Though all are so closely allied in importance, the nervous system, if any, may well be selected as the most indispensable to life. Anything, therefore, which impairs its healthy action must, in the same proportion, blunt and thwart the attempts of the *ego* to communicate with the external world. Instead of smoothness, brightness, capability and success, with what they bring to all mankind, characterizing its expression; roughness, dullness, incapability, shame upon shame, failure upon failure, pause after pause, are the outcome of the broken machinery. No musician, be he ever so accomplished, can make sweet music on an instrument out of tune; nor is it any more possible for us to give to the world the *best in us*, and secure from it the *best for us* through the workings of a diseased nervous system. It is of the utmost importance, therefore, that all men, and especially members of the dental profession, should be conversant with the causes, signs and cure of such an insidious disease as Neurasthenia.

This is an affection characterized by a crowd of reflex symptoms, the result of mental overstrain, whose general pathology consists essentially in mal-nutrition of the nerve centres, succeeded by disturbance in the circulation from weakened innervation.

The great cause of cerebral exhaustion, manifesting itself in wakefulness, heaviness, inability to concentrate the thoughts on any given sub-

ject, etc., is, as has been intimated, the loss of proper tonicity in the nerve centres from want of rest. This expression, "want of rest," includes more than the casual reader will at first suppose. Its first meaning is its primary one,—want of bodily and mental rest. The mind of man is so constructed that while it will do a definite amount of labor, it also requires a proportionate amount of rest. The muscles that execute its decrees are in a similar condition, and this law for healthy action cannot be violated with impunity.

Nothing, perhaps, contributes more to produce a state of nerve-tire than subjection to such serious pressure from external influences as is received in the absorbing struggle for existence, riches, or position in society. As this pressure results in late hours—meaning therefore more work and less rest—it may very properly occupy the head of the list. The business man who remains at his desk long after the hour of closing day, and the devotee of the fashionable late-houred gathering, are each exposing the system to a strain, which at first imperceptibly, and at a later period, consciously, records for them a limited period of existence, and that, perhaps, full of suffering. The student, too, burning the midnight lamp, with his mental faculties, which have borne the strain of the day, still in active operation, burns also his taper of life, which at an early day will dim and suddenly flicker out.

Inattention to the function of digestion, and particularly irregularity in eating, is another productive cause. To this the dentist, amid the rush of practice, needs especially to have his attention called. He in particular, and many in other lines of business, are frequently too willing to allow their calling to absorb the dinner hour either partially or wholly. Repair very soon fails to equal the wear, and in a short time the starving nerves begin to clamor.

The signs which indicate the disease are generally recognizable by the patient himself. He experiences a lack of energy, both mental and physical. Scarcely any attention being paid to this warning symptom, the abuse of the nervous system goes on until it replies by insomnia. It is difficult to get to sleep, and even when this is accomplished, because of the irritable condition of the brain, it is of a broken and unrefreshing character. Often the sufferer becomes prematurely gray and the continuance of the mental worry and emotional strain finally provokes a state of general miserableness, despondency, and snarling passion, accompanied by absent-mindedness, forgetfulness, muscular tremor, with impairment of the power to acquire new impressions.

Such are the signs of Neurasthenia, and if prompt measures are taken upon their manifestation, a healthful mental estate may be resumed. Omission of such action leads surely to insanity.

Removal of the causes constitutes the only cure. Resort to stimulants in any form should be avoided. For, while in moments when the heart is oppressed, when resistance to motion is excessive, and the blood

flows languidly to the centres of life, they are temporarily beneficial, long experience teaches that they must be considered but the whip and spur of the moment, certain to leave the system worse in time. The trouble often must be met promptly by more hours of rest.

1st.—Rest from overstrain in labor, by doing the work required of us with as much method and as little undue haste as possible.

2d.—Rest by means of proper recreation, which may be found in leaving the cares of life frequently for a pleasant ramble where fancy may lead. The time thus seemingly lost will prove time gained. Horse-back riding is a means par excellence. If we cannot afford a horse, the purchase of a pick and shovel may be made to answer nearly as well if used in the open air daily. Daily walking in the open air, if accomplished without fatigue, is eminently beneficial, and when forbidden by stormy weather, the same exercise may be obtained in a room with the doors and windows thrown wide open, care being taken to protect the system by proper wraps.

Last, and not least, rest in sleep. Nothing is to be gained by turning night into day.

I have already indicated the necessity for attention to digestion, and before closing my remarks desire to refer to the use of a substance—tobacco—which, while acting as a deadly poison to the system, is a daily comfort to thousands of persons.

There is no doubt but that the excessive use of this substance will, in almost every instance, produce nervous irritability, yet I am convinced that in moderate use it is a beautiful controller of that irritability which ultimately leads to Neurasthenia, on the principle that tobacco seems to lessen the waste of nerve tissue.

PROTECTING STEEL AND IRON FROM RUST.

Professor Calvert has recently made the interesting discovery by practical tests, that the carbonates of potash and soda possess the same property of protecting iron and steel from rust as do those alkalies in a caustic state. Then it is found, that if an iron blade be immersed in a solution of either of the above carbonates, it exercises so protective an action that that portion of the iron which is exposed to the influence of the damp atmospheric air does not oxidize, even after so extended a period as two years. Similar results, it appears, have also been obtained with sea water, on adding to the same the carbonates of potash and soda in suitable proportion.

The published report of an English benevolent society says: "Notwithstanding the large amount paid for medicine and medical attendance, very few deaths occurred during the year."

FERMENTATION IN THE HUMAN MOUTH.

ITS RELATION TO CARIES OF THE TEETH. THE INFLUENCE OF ANTISEPTICS, FILLING MATERIALS, ETC., UPON THE FUNGI OF DENTAL CARIES. THE FUNGI OF DENTAL CARIES; THEIR PURE CULTIVATION AND EFFECT UPON LOWER ANIMALS. By DR. W. D. MILLER, Berlin, Germany.—Reprinted from the *Independent Practitioner*, Vol. V., Nos. 2, 3, 5, 6 and 7.

A pamphlet of about forty pages, and bearing on its title-page the above inscription, was received a few days since. In reading carefully the record of Dr. Miller's labors, as told by himself, one cannot help but be impressed with the fact that this paper represents not only hours, but months, of patient, painstaking, laborious work, pursued by one deeply interested in his subject, and desirous of giving to the profession results reliable and honestly obtained. While much of the same field has been previously explored, there is certainly no record which gives such wealth of carefully prepared and reliable statistics as does the paper under consideration.

The dental profession has for many years recognized the fact that caries of the teeth was largely due to the presence of acids, and that these acids, to a great extent, were generated in the mouth by fermentation. The object of Dr. Miller's investigations has been, as he states in the first paragraph of this paper, "to determine this ferment, and the conditions essential to its action." The author says: "I shall seek, in what follows, to present no views which are not the legitimate and necessary results of rigid and exact experiment, and I shall give in detail a description of each series of experiments, in order that everyone may have an opportunity to judge of the accuracy of the work, and the justice of the conclusions drawn from it."

The vessels, instruments, etc., essential to these investigations were: A large double-walled incubator; a Koch sterilizer; a damp chamber; a drying oven and glass vessels, and a good microscope, with innumerable smaller instruments, vessels and chemicals, which are always to be reckoned among the accessories to such work. The Doctor, after giving a minute description of his processes, and of the various fungi found in the mouth and decaying teeth, says: "Having established upon an experimental and scientific basis the fact that caries of the teeth is, to a certain extent, the direct result of the action of ferment acid or acids upon the tissue of the tooth, followed particularly in the case of the dentine, by the action of the ferment organisms themselves upon the decalcified tissue, it becomes a matter of the first importance to determine, first, by what means we may counteract the action of the acids, or prevent their production; second, by what means we may save the already decalcified dentine from complete destruction. Evidently there are three methods by which the desired end may be obtained."

These are mentioned, and their importance enlarged upon, in the order in which dentists invariably speak of them to their patients. First, thorough cleanliness; second, repeated application of ant-acids or alkaline substances; third, a proper and intelligent use of antiseptics. Then follows a table which is designed to show the comparative strength of the antiseptics most commonly used. This table, which doubtless has received the Doctor's most careful attention, is especially valuable, not only to the dentist under whose skill and care come abscesses and diseased sinuses or cavities, but to the physician and surgeon also; a point very pertinently made in this connection is the relative antiseptic value of bi-chloride of mercury and carbolic acid. The attenuated solution of the former now in vogue is shown to have but little value. The experiments seem to have satisfied the Doctor that bi-chloride of mercury is about two hundred times as powerful as carbolic acid, hence, when used in the place of the latter in concentrated form, the one one-thousandths ($\frac{1}{1000}$) solution of the bi-chloride is only one-fifth as powerful as pure carbolic acid. The following, from page 31 of said pamphlet, certainly gives the experience of many observing dental practitioners: "Although I have now, as I think will be granted, established upon a sure basis a fact that caries of the teeth may result directly from the action of acid, producing fungi in the presence of fermentable carbohydrates, *the conclusion would hardly be justifiable that, by keeping the mouth constantly and perfectly free from all fermentable substances, or by repeated application of ant-acids or antiseptics to all parts of the teeth, or by all these means together, we could even banish dental caries from the oral cavity. A most powerful influence, which we do not understand, is exerted by the nutritive processes in the teeth themselves.*"* "I am assured by men who have grown old in the practice of dentistry that mouths which have long been under their observation, and which practically have been completely free from caries for years, at once, on account of some sudden change of health, show a general breaking down or crumbling of the teeth, *en masse*, in the space of a few weeks." * * "We have here a cause which lies without the domain of both bacteria and acids (either ferment or otherwise)." The author might also have stated that we not unfrequently find mouths wherein the teeth have for years baffled the efforts of the dentist, so persistently did they decay, when from some systemic change, in which probably the function of nutrition was more normally performed, this wholesale disintegration ceased, and this, too, without the aid of the dentist, and while, in the cavities which had been formed by previous decay, was found decomposing debris filled with leptothrix, and innumerable bacterial forms. The Doctor says: "Though there is no positive evidence for the supposition, it is certainly not altogether improbable that, as a consequence of certain derangements in the nutritive functions of the teeth.

*Italics belong to the reviewer.

resulting from a change of health, etc., a dissolution of the affinity between the lime-salts and the organic matter may take place, thus setting free the easily soluble lime-salts, which are then carried away in solution or washed out mechanically." * * * "If this statement should, perchance, contain a trace of truth, then adult and pulpless teeth should be less subject to the sudden attacks of caries than young teeth with living pulps." That the continuity of the tooth tissue is disturbed by nutritional changes is doubtless true, and well sustained by observation. The periods of ill-health, accompanied or quickly followed by rapid dissolution of the teeth, can be explained in no more satisfactory manner than by the supposition that deficiency or abnormality in the function of nutrition would cause the organic matter to lessen its hold upon the inorganic. This result is noticeable at times, not only in youth and middle life, but in advancing years; where the waste is greater than the supply, it is almost an invariable condition.

The author, on page 39, seems a little disturbed because of his being misunderstood by Messrs. Underwood and Miles, regarding the origin and modification of some of his micro-organisms. If the Doctor will, during his experiments, devote a portion of his time to ascertaining to what extent he can modify or differentiate his fungi, I think he will confirm the theory that the more homogeneous the tissue of the organism, the more readily is it modified by habitat or environment, and that by repeated efforts in cultivation he can, with but a few or it may be only a single ancestor, produce quite a colony of dissimilar objects, and eventually will come to the conclusion that however unlike he may now find his micro-guests, that originally they were, if not of one family, certainly near relations. This hasty and imperfect review of Dr. Miller's paper I close with the suggestion that all who are interested in this subject cannot do better than procure the pamphlet, and give it a careful reading.

C. N. P.

NOTES ON CLINICS AT THE HOSPITAL OF ORAL SURGERY.

EPULIC TUMOR.—In this case the patient presented with a growth around the neck of the left superior cuspid tooth, which on examination was diagnosed to be an epulic tumor of a fibrous nature, involving the mesial, distal and labial sides of the root from the neck to the apex, also the surrounding bone. Such tumors, evincing as they do a great tendency to reproduction, indicate the removal of a portion of the osseous structure, otherwise they will, to a certainty, reappear. Before the adaptation of the dental engine to surgery, the operation was much more complicated, and involved the removal of at least two teeth, one on each side of the tumor; a cut was then made with a saw across the alveoli of the removed teeth, down to a level with the base of the

growth; the portion included between the two vertical cuts was then removed with cross-cutting forceps; the operation usually being attended with considerable hemorrhage.

The complexity of this proceeding being reduced to comparative simplicity in the hands of Professor Garretson, the use of an anæsthetic was not required. The lip being held well out of the way, the tumor was separated from the gum, and a sharp bur attached to the ordinary dental engine being applied to the bony parietes speedily cut the bone away on all three sides. The lingual surface, not being implicated, was left supporting, possibly nourishing, the tooth until the neighboring parts were restored. A nice point in the manipulation of the bur is to define when perfectly healthy bone is reached, so that only the necessary abnormal tissue will be removed. A dressing having been applied, the patient was dismissed, and asked to return in two weeks. During that time, healthy granulation having taken place, the wound healed so satisfactorily and perfectly that, on inspection, previous knowledge of the performance of an operation was necessary to distinguish that such had been effected.

The advantages of this simple manner of operating, compared with the way it was performed a few years ago, are obvious. No preparation is necessary on the part of the patient, very little hemorrhage occurs, as no important vessels are involved, and, what is of great importance, no teeth are lost.

HERPES.—This patient, a girl aged thirteen, appeared with an excoriation on the upper lip. On questioning her it was learned that two or three weeks previous a small cluster of vesicles were noticed, which, by the time she was examined by Professor Garretson in the clinic, had developed into the form of an excoriated patch, covering the width of the lip to the extent of about an inch, having an exceedingly inflamed appearance; in this respect a piece of liver suggests the best analogy for color. Herpes facialis is by no means an uncommon disease; it may occur, as the name indicates, upon any part of the face, but is more frequently met with as an outbreak of one or more clusters of vesicles upon the lips (*H. labialis*). Fox, in his epitome of skin diseases, says: "The vesicles are formed by the exudation of serum and leucocytes into the papillary layer and rete mucosum, and its encasement in loculi formed by the stretched-out rete cells."

The diagnosis of the case before the class discovered it to be herpes labialis, the indication being to reduce the inflammation, which was done by frequent local applications of phenol-sodique. The patient was also instructed to take a pill twice a day consisting of

R.—Assafoetida, gr. j.
Pulv. Rhei, gr. j.
Ferri per Hyd. gr. j.

Under this treatment she speedily recovered.

OSSEOUS DEGENERATION OF THE INFERIOR MAXILLA.—This patient, a lady about thirty-eight years of age, came to Professor Garretson after suffering some months. The history of the case revealed that last November pain was felt commencing at the lower third on the right side of the inferior maxilla to its articulation on the left side. Supposing the pain to arise from neuralgia, she had been treated empirically, as subsequent facts elicited, without success. The pain continuing and increasing, she applied to a dentist, thinking some of the teeth might be the cause of suffering, and that their removal would effect a cure; the practitioner, however, found them perfectly sound, but under the impression that he must do something, extracted the incisors, trusting to providence or some other unknown influence, to connect them with the cause of the trouble.

The treatment received giving no relief, the lady applied to Prof. Garretson, who pronounced the case as one of osseous degeneration, such decision being arrived at from the fact of the pain commencing at the point where the inferior dental nerve passes from the dental canal through the mental foramen to distribute its fibres to the lower lip. The assimilative function of the nerve, being interfered with, “worried” the bone to such an extent as to cause its breaking down, the treatment indicated being the removal of the diseased parts. The patient having been etherized, an incision was made through the soft parts in the centre line, under the chin, down to the surface of the bone; then with the surgical engine and rose bur, revolving probably two thousand times in a minute, the Professor reamed out the whole of the diseased portions around the apex, and along the left side of the bone. In doing this by skillful manipulation, the little alleys or sutures, formed in the decaying bone, were followed by the bur with such delicacy as to remove only the carious portion. The difference in texture between diseased and healthy bone, is distinguished only by experience, which teaches that the former cuts soft and gritty, readily yielding before the instrument, the latter being the reverse of this—hard and resistant. After the operation the parts were thoroughly syringed to remove the debris, this being most essential in all operations for caries. A dressing of tincture of iodine was applied, with the view of stimulating the parts, thus assisting nature in the process of granulation, this object being subsequently obtained, the lady rapidly recovered.

It is worthy of notice that the lady was inconvenienced by none of the prostration formerly attending such an extensive operation, but was able, after a short rest, to go to her home twenty squares away.

The efficiency and rapidity with which the surgical engine does its work cannot be too highly praised. It is invariably used by Professor Garretson in all such cases as this, and he claims that modern surgery has discovered nothing so effectual in the hands of an able operator.

Attention should be called to the fact that the patient, at the time the operation was performed, was three months advanced in pregnancy, notwithstanding which ether was administered with perfect confidence, as the results warranted.

B.

THE PROMOTION OF OSSEOUS DEVELOPMENT.

BY GEORGE WATT.

[Read before the Mad River Valley Society.]

In the statement of the proposition it is taken for granted that bone may be developed, and that such development may be encouraged or promoted.

In a constitution perfectly healthy and well balanced, the bony tissues are developed exactly to the extent that they are needed; but in this proposition it seems to be taken for granted, also, that the process of development is not always well balanced. It may be easy for one constitution to develop bone while it partially fails in the development of muscular tissues. In another, the constitutional tendency may be toward the development of nervous tissue, while another runs to fibrous tissue in general.

The question now comes up—can we, in cases of badly balanced development, do anything to restore or to establish a constitutional equilibrium? All will admit that by violation of the laws of health we can do much to bring about an unbalanced state of the constitution; and it seems but reasonable that we ought to be able to do some good by a reversal of the process.

In a "one-horse-shay," and in any machine, the weakest place must stand the strain, and the way to guard against its breaking, in order that it may be honestly worn out, is to "make that place at strong as the rest." We may thus get a hint on the subject before us. If an organ or function be weakened, so that it partially fails to do its part in the economy of the system, one of two things seems to be called for: We may endeavor to render its work easy, so that it can perform it notwithstanding its debility, or we may try to arouse it to increased energy of action. Either process may, for the time, restore or establish the desired equilibrium; but the latter mode may be similar to the plan of whipping or spurring the exhausted horse. Just as in case of the horse, we must inquire whether the defect results from sluggishness, or from exhaustion. If from the former, we may stimulate, but if from the latter, we would do only mischief by such a course. We saw this plan illustrated when a boy. A shiftless man, with a team, stopped to beg a dinner for himself, and some thread to make a whip-cracker. While eating and repairing his whip, his horses stood tightly reined, in the hot sunshine, and we were not surprised to see that he was fatter than his horses.

All tissues are formed from the blood. "For the life of the flesh is in the blood," is a physiological truth, taught by infallible authority, many long centuries before Hippocrates. Hence, whatever is to be built into the body must be passed to it through the blood. And so it follows that no tissue can be nourished unless the blood contains the

materials necessary to its nutrition—the materials of which it was composed. It does not follow, however, that an organ will certainly be nourished, because the blood contains the desired nutritive principles; for it may not be able to appropriate that which is prepared and ready for it, just as a man may starve in full sight of food, because not able to take it.

It must be always borne in mind that the nutritive functions create nothing. They cannot use that which is not already formed. And let it be remembered, too, that all organic bodies are built up in strict accordance with the laws of chemical combination. Vitality modifies chemical action, but never contradicts or destroys it. It may determine what combinations can take place under certain circumstances, and what cannot. It may prevent one and promote another combination; but, in order to promote any, the materials must be there to combine.

Furnishing food for vegetable life is commonly called manuring; and when feeding his plants, the intelligent farmer tries to know what his soil contains, and what are the constituent materials of his plants; and if the soil is short of these constituents he supplies them. An instructive case of this kind is recalled by memory. A minister of the gospel owned a farm. He called on a man who had some reputation as a chemist, and asked him if he was prepared to analyze soils, and was told that want of time was the only lack, but that would prevent his giving any attention to the soil. But the chemist added—"If you tell me what is the trouble, I may help you without an analysis." "Well," said he, "it will not produce anything." "But that is a slander on your field," said the chemist, "any field you have will bring something. Can you raise straw, or corn-stalks on it?" "Why, yes," said the man, "great crops; but no grain." Knowing the land to have a sufficiency of lime and magnesia, the chemist told him to give the field a dose of phosphorus, otherwise bone ashes. The remedy was tried, and a wheat crop of twenty-five bushels to the acre, followed by a crop of corn of over seventy, was the result.

The same principle governs in animal life. Just as the rootlets of the plant cannot find and use from the soil that which is not there, so a tissue cannot appropriate from the blood ingredients not contained in it. We have already alluded to the fact that chemical laws are not violated in the formation of living growths; and as quantity of matter is one of the modifying circumstances of affinity, it follows that when anything essential to the development of any texture is deficient in quantity in the blood, the development of that texture is promoted by furnishing it in greater proportions to the circulating fluid.

In ordinary constitutions, some essential constituents are more readily assimilated than others; and this is not more a matter of surprise than is the fact that some foods are digested with greater facility than others.

Bone, like other organic matter, is composed mainly of carbon, hydrogen, oxygen, and nitrogen. These constitute its diet, but not its desert. For this it wants salts, and similar materials; and an important, if not the most important one, is the subphosphate of lime. At the risk of disturbing a friend, we will state that this is not the neutral phosphate, but a much more stable salt—one that will endure a white heat without decomposition. To distinguish it, some of the older chemists have recommended that it be called simply “bone phosphate.” Not only is this ordinarily the most important salt concerned in osseous development, but it is often, if not always, the most difficult to obtain and assimilate. And this statement is all the more confirmed by the fashionable habit of separating the greater portion of the phosphate from the food producing grains before using them. As early as 1854 we called earnest attention to this, recommending that whole-grain flour be substituted for the white family flour of commerce. We had been administering the bone phosphate as a medicine, to aid in bony development from the time we began practice in 1844, and we never had cause for discouragement in its use. Good results were as uniformly obtained from its administration as from other medicines. Prof. Taft will remember a case thus treated in 1849 and 1850, with the most satisfactory results. At the risk of hearing something told you before, please listen to a report of this case:

Mrs. M., aged 25, was the mother of two children. She had suffered much from defective dentition, and needed an upper artificial denture. The two children had scarcely any sound teeth, and were often crying with toothache. A third conception had taken place. From about the third month of utero-gestation, at our suggestion, she used daily, and usually three times a day, the bone phosphate. From a pale, emaciated woman she became full-faced and rosy-cheeked; had an easy, natural labor; the babe weighing over twelve pounds; and this child, in time, had a most excellent set of temporary, followed by an equally good set of permanent teeth. The phosphate was continued during the period of lactation. The contrast between this child and the other two was too decided to be accidental; and the case is merely a type of others treated in a similar way.

In 1855 we mentioned this case to Dr. Elisha Townsend and a few other dentists. One of them reported it to his family physician, and requested that his wife be allowed to follow the same course. The physician feared that it might render the labor more difficult, but the phosphate was administered in rather limited quantities. The result was quite satisfactory, and continued to be so till all but the third molars were developed. We then lost sight of the case. The other children in the family had very defective teeth as compared with the one aided by the bone phosphate.

The phosphate used in these cases was prepared by dissolving bones in hydrochloric acid, precipitating with ammonia, and washing and drying the precipitate. We do not think any *better* form of the medicine has been suggested, but some have been prepared so as to be more pleasant and palatable.

But food is better than medicine. Let foods rich in the phosphate be used. The lean meat of beef, mutton, fowls, etc., answer a good purpose. Cracked wheat, oatmeal grits, if properly prepared, are also valuable. From experiments tried long ago we were led to believe that veal and pork are not so rich in the phosphate as are the meats above mentioned.

Some authors speak of the subphosphate being unreliable, if not inert, as a medicine, on account of its insolubility; but their objection loses force through their accompanying statement that it is *highly soluble* in hydrochloric, acetic, and lactic acids. We may add that it is also highly soluble in solutions of carbonic acid; this being the agent that holds it in solution in normal saliva, which can be well remembered by association with the fact that it is the removal of the free carbonic acid from the saliva, by ammonia, that causes the precipitation of this salt in the form of tartar. As all four of these acids are common in the stomach, there can be but little difficulty in obtaining a solution of the salt in it during the process of digestion.

Others have objected to the use of this salt on the principle that inorganic matter cannot be assimilated by the animal economy. But as this drug is obtained by solution and precipitation from *bones*, the inorganic objection falls.

If readily obtainable, it is well to use some of the more elegant preparations, such as wheaten phosphates, lacto-phosphate syrup, etc.; but sometimes a fatal delay occurs, because these are not at hand. If not already prepared, the preparation of the salt is so simple, and the chemicals needed in the process are so readily obtainable, that there is no excuse for delay or negligence.

In considering this topic, it is to be understood that all the nutritive functions are to be in good working order. Sometimes the digestive apparatus and the assimilating powers are so feeble that they are scarcely able to develop any of the tissues. If possible, these are to be restored to health and strength preparatory to special development; for we can scarcely promote osseous development when the vital powers are so enfeebled. And this state of affairs suggests counsel and co-operation with the family physician, provided he is a gentleman, and not an empiric.

To sum up, let us bear in mind that all tissues are built up from materials taken from the blood; that the nutritive functions create nothing, but only digest, assimilate and appropriate; that, therefore, unless the needed materials are in the blood, in the required quantities, there must be defective tissue building, or no development of tissue at all;

that when the needed materials are abundant, there must be, other things being equal, a better and fuller development than when they are deficient in quantity.

We have tried, in a hurried way, to discuss the general principle, rather than to give recipes. Such a course is more likely to call out original thought.—*Ohio State Journal of Dental Science.*

HOW A CHOLERA PATIENT FEELS.

The patient feels well up to within a few hours of the attack, or, it may be, he goes to bed and sleeps soundly through the night, and immediately on rising in the morning is seized with violent purging and vomiting. If judiciously treated many patients recover from this, the first stage of cholera; but if neglected, the tendency of the disease is to grow rapidly worse. The patient complains of intense thirst and a burning heat at the pit of his stomach; he suffers also excruciating pains from cramps in the muscles of the extremities; he is terribly restless; and his urgent cry is for water to quench his thirst, and that some one might rub his limbs, and thus relieve the muscular spasm. The pulse is rapid and very weak, the respirations are hurried, and the patient's voice becomes husky. His countenance is pinched, and the integument of his body feels inelastic and doughy, while the skin of his hands and feet becomes wrinkled and purplish in color. The duration of this, the second stage of cholera, is very uncertain—it may last two or three hours only, or may continue for twelve or fifteen hours; but so long as the pulse can be felt at the wrist there are still good hopes of the sick person's recovery. The weaker the pulse becomes, the nearer the patient is to the third, or collapse, stage of cholera, from which probably not more than thirty-five per cent. recover. In the third stage of the disease the vomiting and purging continue, although in a mitigated form; and the skin is covered with a clammy perspiration, especially if the cramps are still severe. The patient remains terribly restless, longing only for sleep, and that he may be supplied with water. His intellect is clear, but he seldom expresses any anxiety regarding worldly affairs, although fully conscious of the dangerous condition he is in. Sleep and a plentiful supply of drinking water are the sole desires of a person passing through the collapse of cholera. This condition seldom lasts for more than twenty-four hours, and reaction either commences within that period, or the patient dies in collapse, or passes on into the tepid stage, which, in ninety-nine cases out of a hundred, ends speedily in death. On the other hand, the sick person having been in the collapse stage of cholera some twenty-four hours (it may be a longer or shorter period), the temperature of his body may begin to rise, gradually creeping up to the normal standard; the functions of animal life are slowly restored, and the sick person recovers his health.—*Quin's Dictionary of Medicine.*

TIN AND GOLD COMBINED AS A FILLING MATERIAL ELECTRICALLY AND PRACTICALLY CONSIDERED.

BY W. D. MILLER, BERLIN.

It is not known who first ventured to use a combination of tin and gold for filling teeth. About 18 years ago a gentleman called upon Dr. Abbott, Berlin, to have his teeth examined. In one of them Dr. Abbott found a discolored filling, having the appearance of amalgam, and remarked that it was the best amalgam filling he had ever seen, to which it was replied that the filling consisted not of amalgam, but of a mixture of tin and gold foils. Since that time Dr. Abbot has used this filling material in his practice very extensively, and in former years strongly recommended it to the profession. It has, however, been adopted by only a limited number, owing, no doubt, in part to the prevalence of a wide-spread superstition that the electricity attendant upon such a filling will in some way or other be injurious to the tooth. The electrical conditions connected with a filling of this nature can be understood only when the arrangement of the two materials in the filling is perfectly appreciated. The material is prepared by laying from 1-6 to 1-3 of a sheet of No. 4 non-cohesive (Abbey) gold foil upon a similar strip of No. 4 tin foil, and twisting between the fingers into a soft crumpled roll.

It is immaterial whether the tin or the gold is on the outside. Some prefer the former; others the latter. Frequently both materials appear on the surface, something like a barber's pole. These rolls are worked in the same manner as strips of non-cohesive foil, or they may be cut into pellets and worked as non-cohesive cylinders. It follows from this method of preparing the material that the two elements, tin and gold, must be pretty evenly distributed throughout the mass.

There result accordingly upon the surface of such a filling an indefinite number of indefinitely small electric currents flowing in all directions. Since, however, it could happen only by chance that a very great excess of those currents would be directed towards the margin or surface of the cavity, it is not possible to see how any action, either upon the hard tissue of the tooth or upon the pulp, could result from them. We will find a definite negative solution of this question further on.

A question which has given rise to some discussion in America is that regarding the influence which the tin is said to have upon the supposed electrical condition of the tooth itself. We have been told that by lining the walls of the cavity with tin, "the tin being electro-positive, makes the tooth electro-negative, and therefore the tooth is guarded from injury from acids." This explanation is very short, but nevertheless involves some very considerable errors:

First. The supposition that the tin must be placed on the outside to insure success is not in accordance with the facts; it is quite imma-

terial which is outside; in fact, Dr. Jenkins, who next to Dr. Abbot has had more experience in this matter than any other living man, always folds his rolls with the gold outside.

Second. The tooth being a non-conductor cannot receive a potential, either positive or negative, by mere contact with a metal. This point I established some years ago so clearly that even those of contrary persuasion could offer no other objection than that my experiments were made with normal dentine, and that carious (decalcified) dentine would have given other results because of the electric current between the metal and the organic portion of the tooth. Even this objection is, however, merely fanciful, because the dentine used in my experiments, though normal at the very beginning of the experiment, was not so five minutes later, and at no subsequent moment during the whole course of the experiment, on account of the decalcification produced by the acid solutions in which it was immersed.

Third. Granted that an electric element *could* be produced by the contact of gold with tooth-bone in the fluids of the mouth, the electro motive force of such an element would not be changed in the slightest degree by interposing tin between the gold and dentine, the difference of potential between any two conductors being independent of the number of conductors which may be interposed between them. For example, in each of the following series, the difference of potential between the gold and dentine would be the same: 1) gold-dentine: 2) gold-tin-dentine: 3) tin-gold-dentine: 4) gold-tin-copper-zinc etc., etc., etc.-dentine. Consequently by interposing tin between the gold and dentine we would not prevent or reverse the current; we would only increase to a certain slight extent the resistance of the cell. We would, however, obtain a second current (between the tin and dentine), and a third (between the tin and gold).

As for the first and second current (between gold and dentine, and between tin and dentine), whether they would flow in the same or in opposite directions we do not know; the supposition that the dentine is electro-negative to tin and electro-positive to gold, being by no means entitled to the dignity of an established fact.

The explanation offered above is consequently faulty. First, because it presupposes a state of things different from that which really obtains; second, because to account for this supposed state of things, it assumes an electrical condition of the tooth which has been proven not to exist; third, because the conclusions given as the result of this assumed electrical condition are not based strictly upon facts, either experimental or theoretical.

Since I have been in the practice of dentistry I have made over one thousand fillings of tg,* and have had the opportunity of observing at

*I use the symbol tg to denote a combination filling of tin and gold.

least as many more, partly made with the tin next the walls, partly with the gold next the walls, partly mixed, many also begun with tg and finished with gold alone; I have not been able to detect the slightest difference in the result, and cannot say that one method is better than the other. This is also the testimony of others who have used the material much longer than I have.

Again, the combining of tin and gold in one filling has in my practice had no effect upon the dental pulp. It is stated in text-books that it is bad practice to begin a filling with one metal and finish with another, that such an operation is likely to be followed by disastrous results, etc.; this, for all combinations of tin and gold, is not the case.

It is my practice to begin *all* fillings in large cavities, where the structure is poor or the dentine soft and sensitive, or where it is impossible to get a strong, sound margin at the neck of the tooth, or to secure perfect exclusion of moisture with tg, and then build the gold directly upon this; also all inaccessible points I fill with tg; also all deep pin-hole cavities on the grinding surface I fill to one-third or one-half with tg and complete with gold, and I have yet to see the first case in which the slightest disturbance of the pulp resulted from this treatment.

We may say, therefore, that neither experimentally, theoretically, nor practically can any good or bad result be expected from the electrical action of a tg filling upon the tooth-bone; neither have we to fear a disturbance of the pulp from the use of tin and gold in any form in the same cavity. (Here, of course, no reference is made to those cases where a large gold filling in one tooth is brought into contact with a large filling of tin or amalgam in the adjoining tooth.)

We therefore, as far as the tooth is concerned, dismiss the question of electrical action altogether, and will now consider what are the qualities of tg which render it a desirable material for filling teeth.

First. It may be inserted with an ease and a rapidity scarcely equaled by any material in use. This is especially the case with shallow crown fillings. Medium-sized fillings of this class may be easily inserted in the time required to mix either amalgam or oxy-phosphate when the acid of the latter is in the form of crystals.

This property makes it particularly adapted for the treatment of the temporary teeth where the cement fillings generally prove a failure. Two minutes is abundantly sufficient for simple cavities in the temporary teeth. Again, for partially erupted teeth it may be used to a very great advantage. We often find molar teeth requiring fillings on the grinding surface when they are only half erupted.

To cut away the gum and adjust the rubber-dam and insert a gold filling would be a very long and painful operation, and even if its success were sure, it would be very impolitic to subject young patients to it; cement in such cases is useless, and amalgam, to many, for various reasons, objectionable. In tg we have a material which, with no other

protection against moisture than a napkin, may be inserted in from two to five minutes, and will be equally permanent with the best gold filling, and often more permanent. This brings us to another excellent quality of tg, viz :

Second. The presence of a slight amount of moisture does not at all impair the success of the filling ; it is even not sure, for reasons given below, but that the filling is benefited thereby. I have made a number of fillings, by way of experiment, completely under saliva ; after a few weeks one cannot tell but that such fillings have been made with perfect seclusion of moisture. It cannot be denied that a filling material which is not injured by moisture possesses an enormous advantage over gold or cement.

This property may be well utilized in cases where it is not expedient to remove all the softened dentine, and where a complete sterilization of the cavity cannot be accomplished by a single application of the antiseptic. In this case the cavity may be thoroughly bathed in carbolic acid, or one per cent. sublimate solution, and the tg inserted without drying ; or the first piece may be dipped into one of the above-named antiseptics and placed in this state upon the floor of the cavity.

Third. Tg adapts itself with great readiness to the walls of the cavity, and may be used in saucer-shaped cavities where neither gold nor amalgam could be made to stay, except by means of strong retaining points or grooves.

Fourth. Tg, in the course of a few weeks after insertion, undergoes a marked change, the cause of which is not well understood ; it results in a discoloration of the filling (which sometimes is but slight, and at other times amounts to complete blackness) ; furthermore, in a slight expansion of the filling, thereby making it water-tight, if it was not before.

If we remove the surface from an old tg filling, we will find beneath neither tin nor gold, but a semi-crystalline mass which it is sometimes impossible to distinguish from amalgam. This change, as well as the slight expansion, appears to take place sooner in a filling which has been inserted wet than in one inserted perfectly dry. For this reason I mentioned above that such a filling might even be benefited by a certain amount of moisture. As for the manner in which the discoloration, expansion and amalgamation (?) of such fillings are brought about, a number of theories might be offered ; there is little benefit, however, to be derived from a theory not properly supported by facts.

It is significant that an attempt to collect a sufficient number of old tg fillings to make a chemical study of the question did not succeed, it being exceedingly rare that a filling either becomes loose or requires renewing, whereas, as we all know, our gold fillings are failing almost daily.

To recapitulate. Tin and gold used in the manner first advocated by Dr. Abbot owes its virtues to the ease and rapidity with which it may be inserted, to its marked adaptability; to its freedom from injury by moisture, and to its slight expansion after insertion. It does not owe its any virtue to any supposed electrical action upon the tooth itself.—*Independent Practitioner.*

WATER AS A DIURETIC.

In an article on the action and use of diuretics, in the *Practitioner*, May, 1884, DR. T. LAUDER BRUNTON says that water is, perhaps, the most powerful diuretic we possess, although fewer experiments have been made with it upon animals than with the others. The diuretic action of water drunk by a healthy man is very marked, and it appears impossible to explain its elimination by a mere increase in blood-pressure, whether general or local. It has the power of increasing tissue-change, and thus multiplying the products of tissue-waste which result from it, but it removes these waste products as fast as they are formed, and thus, by giving rise to increased appetite, provides fresh nutriment for the tissues, and thus acts as a true tonic. In persons who are accustomed to take too little water, the products of tissue-waste may be formed faster than they are removed, and thus accumulating may give rise to disease. If water be freely drunk by such persons, the product of waste will be removed, and health maintained or restored. Many gouty persons are accustomed to take little or no water except in the form of a small cup of tea or coffee daily, besides what they get in the form of wine or beer. In such people a large tumbler of water drunk every morning, and especially with the addition of some nitrate or carbonate of potassium, will prevent a gouty paroxysm. Still more numerous, possibly, is the class of people who arise in the morning feeling weak and languid, more tired, indeed, than when they went to bed. Many such people are well fed, they sleep soundly, and it seems almost impossible to believe that the fatigue which they feel in the morning can result from imperfect nutrition, more especially as one finds that after moving about the languor appears in a great measure to pass off. It seems that this languor must depend upon imperfect removal of the waste products from the body, as we know that the secretion of urine in healthy persons is generally much less during the night than during the day. Such people should drink a tumbler of water before going to bed in order to aid the secretion of urine and of the waste products during the night. In some cases, though not in all, the result has been satisfactory, and possibly might have been still more so, if the bi-carbonate and nitrate of potassium, which are so useful in cases of gout, had been added to the water.

Lately a plan of treating gout by draughts of water at intervals during the day has been a good deal employed, and is in many cases successful. The following is the diet used along with this treatment by a medical friend :

7.30 A. M. Ten fluidounces of very hot water. 8 A. M. Breakfast : equal parts of weak tea and milk, a small quantity of white sugar, a slice of fat bacon without a strip of lean, bread, and fresh butter. 1 P. M. Milk-pudding, rice, sago, tapioca, macaroni, or blanc mange, and small biscuits with butter, ten fluidounces of hot water. 4 to 5 P. M. Ten fluidounces of hot water. 6 P. M. Dinner : white fish or fowl (usually boiled), greens, bread, no potatoes, claret, seven fluidounces. 8 to 9 P. M. Ten fluidounces of hot water. 11 P. M. Ten fluidounces of hot water.

If he indulges either in meat or game, or drinks copiously of claret, or omits one or two glasses of hot water, he feels gouty and gravelly next day. It is obvious that by this plan of treatment, in which the ingestion of nitrogenous food is most strictly limited, at the same time that every faculty is given for the elimination of the products of nitrogenous waste by the large quantities of hot water drunk in the course of the day, the accumulation of waste in the tissues ought to be most effectually prevented.—*Medical News*.

SPECIAL PREPARATION FOR PRACTICE.

BY LAGO.

The powers of the doctorate reach every man's home and hearth, and, as they either irritate or soothe, prove a bane or a blessing. Much of its excellence will depend upon general training, but not a little must have foundation in special education.

Any treatise on this subject is in duty bound required to speak of errors and deficiencies, and of the inadequate conceptions now entertained of the true office and mission of a practitioner. Skill and facility in all things depend upon study and practice, combined with an ability to use knowledge gained. A practitioner then needs to train himself, first, in the natural qualities, properties and powers of his work; and secondly, in the means of modifying and regulating them with a view to improvement. Everybody knows that the strength of the blow must be adjusted to the malleability of the metal. It will not do to strike glass and flint with the same force or the same implements; neither will it do for a practitioner to suppose every patient to have but one temperament, or to treat every patient on exactly the same basis, socially and otherwise. If he does, he must not be surprised if he fails of success. Far better is it if by his perceptive faculties he learns the properties of created things, and discovers the laws by which they are governed, if by tracing

the relation between causes and effects he acquires a kind of prophetic vision and power; for, by conforming to the interchanging laws of nature, he enlists her in his service, and she works with him in fulfilling his predictions.

Again, we have a natural, spontaneous feeling of self-respect, an innate sense that simply in our capacity as practitioners, we are worth something, and entitled to some consideration. Where this feeling of self-respect exists too weakly, the whole character becomes limber, flaccid, impotent, sinks under the menace of opposition, and can be frightened out of anything and into anything. On the other hand, when this propensity becomes swollen with pride, conceit and intolerance, it is an offensive nuisance. Let one then specially cultivate the proper condition which is designed to subserve the greatest good.

Again, a practitioner must not only be specially trained into correctness of observation, comparison and judgment, but into accuracy in the narration or description of what he has seen, heard, thought or felt, so that whatever thoughts are within him, he can present them all to others in exact and luminous words.

Lastly: the moral faculties increase or decline, strengthen or languish, just as they are exercised. When a practitioner is stimulated to the performance of actions or work, externally right, by appealing to motives intrinsically wrong, he sells himself into bondage to wrong motives. Our calling wants men who have learned the language of sympathy for human suffering, and are not deaf when the voices of truth and duty utter their holy mandates. It wants men who feel a sympathy, a consciousness of brotherhood for the whole human race. As active practice is thus so responsible, it is well, by special preparation, as indicated, to make good service better, incompetent action less incompetent; and do all in our power to promote the progress and to diminish the dangers to the profession.

In his address before the American Health Association, Dr. Hunt, while speaking of the difference between a man who is able to discover a fact and one who can discover merely an account of one, illustrated his point by referring to the mental habits of astronomers. It appears that a Washington astronomer was at a recent marriage reception, and, being somewhat absorbed in thought, was asked if he had paid his respects to the bride. "No," was the answer, "I have not." "But why do you delay?" asked his friend. "Because," said he, "I have no facts to communicate."

An English journal calls the people of this country "a nation of pie eaters." If this writer could sit down to a cold apple pie, such as "mother used to make," smothered in thick cream, he would make use of some other name with which to abuse us. We have eaten pie that was almost religion.

THE ESSENTIALS FOR THE SAFE ADMINISTRATION OF ETHER.

Dr. David W. Cheever concludes an article on the administration of ether in the *Boston Medical and Surgical Journal*, May 29, 1884, by giving the following essentials for its safe use :

An empty stomach.

A loose neck.

A free abdomen ; no corsets or skirt bands.

Removal of artificial teeth.

An easy, semi-recumbent position.

A sponge wrapped in towels for the ether.

A gag and forceps for the tongue.

When stertor occurs, the patient should be tipped forward, the cheek opened with two fingers, the tongue drawn out, the fauces swabbed. To insure safety, the surgeon should hear every respiration of the patient.

Anæsthesia from sulphuric ether is of two forms :

1. Primary anæsthesia, which is a moment of confusion coming on after a very few inspirations. At this moment a felon can be opened without pain, and the patient wake at once.

2. Catamose anæsthesia, for prolonged operations. Ether *may* be given almost indefinitely. To relieve the hopeless agony of tetanus, I have had it administered for twenty-four hours.

If you would avoid asphyxia, nausea, and headache, and be *safe*, use only the best and the purest anhydrous sulphuric ether.—*Medical and Surgical Reporter*.

EDITORIAL.

DEVELOPMENT OF ENAMEL.

“Is the outer part of the enamel of the teeth the first to be calcified, and the portion next the dentine last ; or does calcification commence at the junction of the enamel with the dentine, and continue outwardly ?” is a question which at present seems to be agitating the professional mind, and which, it is to be hoped, will continue to be discussed and investigated until it shall be definitely settled to the satisfaction of all.

The able articles by Dr. Williams, as published in the *Dental Cosmos*, represent the ideas pertaining to the old theory that the last part of the enamel to become solidified is that upon the surface, or that part which first presents when the tooth makes its appearance through the gum. In an article published in the June number of THE DENTAL PRACTITIONER, Dr. Cryer takes exceptions to this theory, and if he has not demonstrated to many minds that the exact reverse is true, he has taken a long step in that direction, and presented many *facts*, which, when compared with the “accepted theory,” will furnish ample food for thought, and stimulate to further investigation.

As an evidence that Dr. Cryer's views are not without solid antecedent, we introduce an extract from Dr. Garretson's theory, as expounded by Prof. J. Foster Flagg in the *Dental Cosmos*, December, 1872 :

"The pulp continues increasing until it has attained the dimensions of the fully formed tooth-bone (dentine), when it, together with its covering layer of what was mucous membrane, ceases to enlarge. It will be remembered that a space exists between the layer of mucous membrane covering the pulp and the mucous membrane lining the opercula. It is into this space between these membranes that there is now poured out a plasm, which has been stated by all the standard authors to be the product of the modified mucous membrane lining the opercula, but which I believe (following Garretson) to be an emanation from the dental pulp, so impressed in its passage through the modified mucous membrane covering the pulp as to become subservient to the purpose of enamel formation. Thus it is that I accept for that layer of modified mucous membrane the term "*enamel membrane*," and class enamel as an epidermic structure. The layer of mucous membrane which lines the inner portion of the coalesced opercula continues to grow, toughening in its growth, until it assumes the shape and size of the exterior of the enamel, in which form it maintains the enamel plasm until a very advanced stage of its organization,—indeed, until the eruption of the tooth takes place. By the time, however, that this perfect growth of the *matricial* or *form-giving* membrane has taken place, and the now considerable space between it and the *enamel membrane* has become filled with enamel plasm, a recession of the dental pulp proper takes place, and an exudation of dental plasm is found between the external surface of the hyaloid pulp structure, and the inner surface of the *enamel membrane*. This soon commences its dentinal development, and not only is the peculiar fibrous appearance characteristic of *dentine* observable, but at that portion farthest from the dental pulp, and immediately contiguous to the enamel membrane, the further organization of commencing dentinal calcification is perceptible; this classes *dentine* as a dermic structure. Simultaneously with the formation of this cap, or crust, or cusp of hardened structure, we find the external face of the enamel membrane to have become impressed with hexagonal indentations, within which the enamel plasm, having so far matured as to have become in part crystallizable, hexagonal crystallized enamel rods (as they are termed) commence their formation. This crystallization of rods is continued outwardly until they reach the inner surface of the *matricial membrane*, and are apparently moulded into shape by it. Between the enamel rods, from the commencement of their formation to the completion of their proper length, we have a network of organic structure, through the instrumentality of which the complete hardness of the enamel is effected, and its future nourishment from the enamel membrane maintained. This final hardening takes place from the ex-

terior inwardly, and thus it is that we find the finished enamel hardest externally."

This theory would seem to be at least plausible, in view of the fact that the brilliancy and translucency which the enamel presents in an entirely vital tooth usually undergo a decided change upon the death of the pulp. True, the enamel contains but three per cent. of organic material, but this is sufficient to make it a vital tissue; to remain so it must receive nourishment, which nourishment, it would seem natural to suppose, it derives from the pulp through the sub-enamel membrane.

In the hair, the nail, the hoofs and horns of cattle, in the true epidermis, and in the bark of trees (which may be considered analogous to animal epidermis), we find cell growth taking place from within outwardly; while the greatest density is found upon the surface, and gradually diminishing until we arrive at new germinal matter within.

If the enamel is developed from this same epiblastic layer, Dr. Cryer's question, "why in this particular tissue should the formative order be reversed?" remains unanswered.

A NEW SURGICAL LAMP.

Under this caption, in a recent issue of *The Press*, appears an account of a "remarkable electrical apparatus for examining the interior of the human body," for the invention and introduction of which E. T. Starr seems to be given the entire credit. The article says: "Since 1881 E. T. Starr, an expert in electrical science, has been working at intervals upon minute electrical lamps, in his rooms in White's dental establishment, at Twelfth and Chestnut Streets, and at last has succeeded in getting highly satisfactory results. *Patents have been obtained.*" (Italics ours.) "The instrument has been critically examined by dentists and surgeons, and has already been used in practice."

Then follows the description of an instrument substantially similar to one which was invented and *given* to the profession some eighteen months ago by Mr. J. S. Dickin, L.D.S., of Southport, England, and which, in a modified and improved form, was first introduced to the profession in America by Dr. M. H. Cryer, of Philadelphia, before the Odontographic Society. A full and illustrated account of this instrument appears in *THE DENTAL PRACTITIONER*, January, 1884. Dr. Garretson also makes mention of the lamp and its application in the fourth edition of his "*System of Oral Surgery.*"

Without, in any way, wishing to detract from the honor and credit due Mr. Starr, we think it but just that attention should be called to the labors and accomplishments of Mr. Dickin and Dr. Cryer in the same direction, that they also may receive their rightful share of whatever glory may attach to this invention.

CALCIFICATION AND DECALCIFICATION OF THE TEETH.

We have received from Prof. C. N. Peirce a finely executed diagram illustrating a paper under the above title, read by him before the Pennsylvania State Dental Society. It shows, in a remarkably comprehensive way, the progressive development of the deciduous and permanent teeth, from the seventeenth embryonic week until the last permanent molar is fully formed. It also represents the decalcification of the deciduous teeth in the natural process of their removal.

The card contains a vast amount of useful information in a "nut shell," and is admirably adapted for the use of students.

It can be procured from Gideon Sibley, 13th and Filbert Streets, Philadelphia, at 10 cents per copy.

INDIANA DENTAL COLLEGE.

We are happy to note an elevation of the educational standard of this institution. In the announcement for 1884-85 we read:

"The requirements for admission are a good English or common-school education and good moral character.

Requirements for graduation, attendance upon two full courses of dental college instruction, the last of which must have been in this college.

Five years' practice, with a satisfactory examination upon practical dentistry, will be considered equivalent to one term, and entitle the applicant to enter the senior grade.

Each candidate for graduation must be competent to practice dentistry intelligently."

This is as *little* as any dental college can do in this country and expect to retain the respect and encouragement of the profession.

FOR SALE.

A finely furnished DENTAL OFFICE, doing a fine business, in a live manufacturing town of 6,000 inhabitants. Will sell outfit in part or entire. This is a RARE CHANCE, and a bargain for the right man. Best of reasons for desiring to sell. Terms made known on application. Address

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THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

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THE COMBINATION FILLING.

BY CHAS. E. GRAVES, D.D.S.

Of the many difficult operations the dentist is called upon to perform, that which has for its objective point the filling of a tooth, so as to save it and continue its utility, is perhaps the most difficult. That this one operation has time and again baffled the skill of many operators matured by many years of practice is a fact so well established that it would seem that the cause of failure lay, not in lack of skill, but rather in the relative qualities of the material used to withstand the peculiar influences surrounding the individual case. From an appreciation of this point, the dental profession has for many years past indulged in prolonged and heated discussions of the saving properties of the different materials used for filling carious teeth. It is not my object nor desire to enter the arena, and in the short limits of this paper discuss the comparative merits of gold, gold and tin; amalgams, and the cements, whose names are legion, but simply to describe what seems to me to be a satisfactory method of saving teeth that in very many cases would undoubtedly be sacrificed, if not by the use of the forcep more certainly by an unsuccessful attempt to save them with any of the above-named materials used alone.

But before describing the combination filling, let me define my position. I do not, by any means, discard the use of gold, or gold and tin, as unquestionably in many, perhaps most cases, they can be used with certainty, and when so used meet every requirement, giving a result at once both beautiful and durable.

The combination filling is not to take the place of gold, but more especially of the plastic filling generally.

What dental practitioner is there that is not continually being called upon to do that which seems almost an impossibility in the way of saving very bad teeth? The anomaly is not to be found, and all have met with cases like the following:—A patient comes to the office with an

aching tooth. An examination reveals a large disto-approximal cavity in an upper molar, as also might be the case with either of the bicuspid or molars in the upper or lower jaw.

Of course we do not consider it is proper or right to extract such teeth, but expect that the D. D. S. of to-day should have capabilities sufficient to save them with all their functions in full force.

How shall we proceed? Shall we devitalize the pulp by the use of arsenious acid, or shall we adopt the more modern practice of capping? In this instance we decide to cap, because the pulp is nearly or but slightly exposed, and has troubled the patient only a few days—about a week.

We proceed with the operation, syringe the cavity well with warm water to remove debris, apply the rubber dam, then with sharp chisels break or cut away the thin walls sufficiently to insure a good foundation for filling, and with proper instruments remove the carious portion,—shall we say all of the carious part? We think it is the better practice to remove all that can be lifted away with a spoon-shaped excavator and not wound the pulp. This being done, a small pellet of cotton is then saturated with deliquesced carbolic acid, or, if indicated, a little Morp. Sulp. may be added, and placed in the cavity so as to completely fill it for a moment. In the choice of a material for the cap, I have found the silk isinglass adhesive plaster to best answer all the requirements. Having placed this cap in position, we proceed to prepare our materials for the filling, by mixing our amalgam or alloy rather soft, that is, so that it will readily take the impress of the finger. Having this ready we then fill the cavity half full or more with phosphate cement mixed quite soft or thin, so that the pressure used in its insertion shall not cause it to impinge upon the pulp; now, as quickly as possible, place the amalgam in position, and by the use of a blunt plugger, or any suitable instrument, work or press the amalgam into the cement, which process will form retaining pits for the amalgam. Allowing the cement to completely line the cavity, carefully remove all cement from the edges of the walls, after which finish filling the cavity with amalgam mixed hard or dry, completing the operation at one sitting. To be successful in the use of this method, it is necessary to use a slow-setting phosphate cement. Justis' No. 2 Oxide or powder, together with the phosphate fluid prepared by mixing glacial phosphoric acid, one ounce; water, two ounces; evaporate to the consistency of quite thick cream, is what I use, and it seems to give the best results. The advantages of this method of filling are quite apparent, if we take into consideration the amount of time saved by the quickness with which this operation can be performed. The positive good results which are invariably attained, and the comfort of our patients, both during the work and subsequently.

After about three years' trial of this combination, I am personally convinced of its practicability in saving those teeth where plastic materials are indicated.

DENTAL HYGIENE.

BY DR. E. C. RIDGELL.

[Read before the South Carolina Dental Association.]

Hygiene, as a general term, is a system of principles or rules designed for the promotion of health. Then we might say dental hygiene is to preserve the dental organs in a normal condition.

Now, as the teeth are falling such ready victims to that devastating malady, caries, we must first consider the cause of caries before we can expect to successfully combat it by hygienic laws.

There are none so incredulous but what will give credence to predisposing causes, such as 25 per cent. of organic matter, when there should not be but 5 per cent., and many other inherent defects which are patent to you all.

I will only speak of exciting causes, as we must take things as we find them, and not as we would have them.

On this point the most eminent men of the profession are not agreed; then you will not expect me to determine this mooted point, but give my opinion, and when I err not to be surprised, but bear with my weakness and extend to me a helping hand, that I may see as you see.

First, as to the acid theory. When we look at the analysis of a tooth, and see the great amount of earthy matter there, which, it seems, could never perish, it sets us at once to studying what is it that causes this 95 per cent. of earthy matter to disintegrate so rapidly?

(I speak of enamel, as it is first to be attacked.) What is the inorganic matter, and why lay more stress on this than the 5 per cent. organic? First, phosphate of lime, carbonate of lime, phosphate of magnesia, and other salts.

We consider the 5 per cent. organic of less importance, as it constitutes so small a part of the tooth, and is not so easily affected as inorganic.

Take an acid in your mouth, and what is the effect? We might say as others have, "The fathers have eaten sour grapes, and their teeth are on edge," and it seems that all the nerve fibrils of the tooth are exposed, as you can note every change of temperature that is allowed to come in contact with them.

What has caused this? The acid has dissolved the inorganic portion of the tooth and laid bare the organic. Thus layer by layer the tooth will waste away.

We thus infer from this, to keep the teeth bathed in an alkali will preserve them.

Put an alkali in your mouth, and your gums are irritated and teeth feel as if a lubricant had been spread over them, and are not so susceptible to changes as when the acid was taken.

What has worked this change? The alkali has attacked the organic portion of the tooth, and has devitalized it or deprived it of a portion of its vitality; and by persisting in this, the great circulating system of the tooth is destroyed; thus cutting off all communication for nourishing the tooth, it stands a ready victim to acids, with no vitality to warn of impending danger, and with the tubuli emptied of their contents, the acids can readily permeate the whole tooth.

Hence, we conclude that the organic as well as inorganic should be cared for, as the inorganic is deposited by or through the organic, and both are dependent on each other. Now, as the salvation of the tooth in a great measure depends on the condition of the saliva, we will try and keep this in a healthy state.

How are we to do this, and when do we know it is needed? In extreme cases the teeth will warn us of this, as being sensitive and on edge. This indicates an acid, and is alleviated by local application of an alkali.

If gums are sensitive, the teeth seem to have a lubricant on them; this indicates an alkali, and is obviated by an acid.

If during gestation or lactation the patient experiences much uneasiness of the teeth, with a tendency to neuralgia, and an examination of the teeth reveals no local cause for it, we may give tonics and alkalies. We also have the bacteria hypothesis to contend with. We are told that they (bacteria) pervade the whole universe, and woe betide the object that furnishes food for them! Now that our mouths are opened so often, these ferocious animals are permitted to enter unmolested and commit their depredations on the teeth. But seeing they are not yet masters of the situation, they reconnoiter till Mr. Acid appears, who swings open the ponderous pearly gate and bids them enter. Being somewhat fastidious they only take the organic portion, which they follow in all of its most complicated ramifications, exhaling and excreting noxious odors and acids on their tour, which having an affinity to the lime salts of the tooth, is very obvious why we cannot save them.

In attempting to give any information as to the presence of bacteria, and means to defend ourselves against them, I am completely wrecked, inasmuch as I can't tell when they are present until they have gotten the tooth under their own control. Our only recourse, then, is to keep our teeth bathed in antiseptic or germicide. And what shall this be? I don't know, as some one has seen the bacteria crawling on crystals of carbolic acid.

I say, let us keep the acid in subjection, that it may not deprive the organic portion of its lime salts; then the bacteria can't attack it, as the organic is the part they lay hold of.

Much good is accomplished by the use of the pick and brush, as particles of food and other deleterious substances can only be removed from the interdental spaces and margins of gums by them, and this is

best accomplished by rotating the brush from the gums to cutting edge of the teeth, thus cleansing the teeth and pressing the gums to them. Putting a bit of bicarbonate of soda on the brush occasionally is good as it neutralizes the acid and leaves the teeth so smooth that nothing will adhere to them. All food, if allowed to remain in contact with the teeth, is more or less deleterious, but to some special prominence has been given, such as acetic acid, etc., and to this class I would respectfully submit a decoction of coffee.

My attention was of late called to this by the dark places on cups used for coffee, which could not be so easily reached by the cloth, and in answer to this I found it could not be washed off and hardly rubbed off. But put a little bicarbonate of soda on the cloth and it is very easily removed. Noticing stains of the same hue and apparent deposit on teeth, instead of using pumice-stone to remove I use bicarbonate of soda and soft pine, and find it very effective.

Smoking tobacco causes sponginess and irritation of mucous membrane of mouth, and leaves a deposit on the teeth. Chewing tobacco, while the everchanging of the quid and increased flow of saliva tends to rinse deleterious substances from the teeth, is good. Yet it does not compensate for the injuries done, such as forcing tobacco between the gums and teeth, causing recession of gums, and the mechanical abrasion of the teeth.

If we had a gum that we could chew that would deposit nothing on the teeth, neither abrade nor corrode them, I think it would exert a healthy influence on the teeth.

It would certainly be the thing for those who are careless about brushing their teeth. Then it would be exercise for them, and would tend to develop them and prevent deposits.

The negro during his bondage possessed excellent teeth, which is not so now. A maid-servant who, during her bondage, was in the mansion, and sharing the same privileges with the whites, had teeth no better than theirs.

Does it come from the food, then? In a measure, it does, but to this too much prominence has been given.

The cry is, our food is too carbonaceous; it has not enough bone-forming material in it. Is this correct? Look at some of the high livers, and you find their teeth decayed and recommend Graham bread. On their teeth, at the same time, you can find any amount of tartar. Does this not indicate a superfluity of inorganic matter? Then you must have transgressed some hygiene law that has caused this material to be misapplied.

Dr. Hunt, of Washington, tells us: "So far as is known the state of the teeth of the Esquimaux is unchanged."

The testimony of the various tribes of Indians visiting Washington is, that their teeth were good before the white man came among them,

but since, they have been getting bad. Now, if I mistake not, the Indian's food is almost entirely carbonaceous; and the Esquimaux, especially, has carbonaceous food. Now, how do you reconcile these things to the edibles?

I will venture the assertion that in no country are the teeth in a more deplorable condition than in America. Why is this? Is it because we eat more or not as good food as any other people? Or have not enough sunshine and out-door exercise? Has climate something to do with it, or what is it? Well, perhaps this inter-marrying of different races has something to do with it, but I am constrained to believe that our M. D. figures about as conspicuous in this as acid, bacteria, fine bread, or anything else.

Hence, to save the teeth, I think health the great desideratum. But to lay down specific rules for this, I cannot, as all are not constituted alike; then nature must do this. Every man's idiosyncrasies are better known to him than anyone else. Then it becomes the duty of one to study hygiene. However, I may mention a few rules that will be of service to the beginner:

1st. During gestation and lactation, let the mother do all to preserve her health, and eat enough of such food as will afford plenty of milk for her child.

2d. Always attend to nature's calls; proper and sufficient food when hungry, but never gorge; plenty of sleep and out-door exercise.

3d. Pay due attention to cleanliness and raiment; use as little medicines as possible; avoid the use of all substances that will abrade, corrode or form any deposit on the teeth, and keep them clean.—*Southern Dental Journal*.

CIDER VINEGAR IN THE TREATMENT OF DIARRHŒA AND DYSENTERIC SYMPTOMS.

BY THOMAS C. STELLWAGEN, M.D., D.D.S.

The apprehension of the danger threatened by the Asiatic cholera, being already accompanied by an amount of diarrhœa and dysentery in most communities, it seems incumbent again to call attention to the internal administration of cider-vinegar as being followed by such remarkably happy effects upon such maladies.*

It has recently been said that the cholera microbes are destroyed by acids, and that alkalies favor their generation. Pure lemon-juice is reported to have been recommended abroad for diarrhœa, and the general opinion that the fermented acids from fruit juices are dangerous in

*See American Edition of Coleman's Dental Surgery and Pathology, p. 32.

such diseases, seems about to be proved erroneous, or at least found liable to very pronounced exceptions.

In these affections when the contraction of the sphincter ani muscles demands an effort on the part of the will, merely bringing vinegar in contact with the tongue inaugurates a reflex action upon the nervous system, and probably the lower portion of the spinal cord, that almost invariably relieves the patient. The cramps, tenesmus, and chills that are so distressing, are quickly combated by a draught of the remedy, and succeeded by a glow of the most natural and comforting character.

Vinegar swallowed in doses of a teaspoonful by young children, and a wineglassful by adults, may be repeated several times if the pain returns or the evacuations of the bowels recur, until generally after the third, but most frequently after the first administration, there seems to result a complete cure, and this, too, without any necessity in ordinary cases for positive restrictions of motion or diet.

This has been so safe, rapid and complete a cure in both recent and chronic cases, that to enumerate them here would seem less likely to convince doubters of its efficacy, than to cause them to suspect it as savoring of the sentiments of reports of the advertised nostrums.

A food of the class of condiments, so universally used, being mentioned by the early biblical writers and known as a part of the diet of millions of soldiers from the time of the Romans to the present, would seem to encourage the conscientious study of articles of daily and familiar use, for the discovery of new capabilities. Doubtless there are many simple and efficient remedies at our command that have been overlooked through their simplicity and innocuousness.

The aphorism of Sydenham, that "the nearer a medicine approaches a food the more efficient it becomes"—excites the hope that it is pardonable to attempt the persuasion of others to test this plain acquaintance, and thus see if it is not worthy of greater respect in the pharmacopœia.—*Medical News*.

PROOF OF DEATH.

If most people are afraid of anything it is of being buried alive. That cases do happen where it is very difficult, even for the experienced physician, to determine whether a person is really or but apparently dead without his having recourse to means, while they would at once settle the dispute, would place life, if it really still existed, in jeopardy, may be judged from the fact that the French Academy some ten or fifteen years ago offered a prize of 40,000 francs for the discovery of some means by which even the inexperienced may at once determine whether in a given case death had ensued or not. A physician obtained the prize. He had discovered the following well-known phenomenon: If

the hand of the suspected person is held towards the candle or other artificial light, with the fingers stretched, and one touching the other, and one looks through the spaces between the fingers toward the light, there appears a scarlet red color where the fingers touch each other, due to the still circulating fluid blood, as it shows itself through the transparent, not yet congested tissues; but when life is extinct this phenomenon at once ceases. The most extensive and thorough trials established the truth of this observation, and the prize was awarded to its discoverer.

When electricity, or rather its application in medicine, came in vogue it was first thought that it would be a means of deciding whether a person was dead or not. This assumption was based upon the fact of electro muscular contraction. But experience soon proved that for one to three hours after death has taken place, and in some cases where rigidity but slowly ensues for a still longer period, the muscles of a dead individual respond as well to the electric stimulus as those of the living being.

Dr. Max Buch now publishes in the *Central, f. Neuenhklkd.*, 2, '84, a modification of the above, and what promises to be a reliable and scientific proof of death, for thus far no scientific test existed.

While in the living the temperature of the surface over a muscle in the act of or immediately after contraction decidedly increases, this increase is utterly wanting in the dead, and even during the time (one-half to three hours) in which after death the muscle still retains its contractility. Having placed, therefore, a surface thermometer on the skin, and having waited until the temperature has continued at one and the same height for about five minutes, the muscle just below the bulb of the thermometer is made to contract by electric irritation. If, then, the column of mercury does not rapidly ascend we have the most definite and the scientific proof that life is extinct in the body; while if the temperature increases it is just as certain that there is still life. Under normal condition the skin for a considerable distance increases by several degrees in temperature if in the muscle below is caused a powerful electrical contraction; and this phenomenon is also observed in paralyzed limbs; while in the dead nerves the production of heat, as induced by motion, has forever ceased.

The method, it is true, has not yet been tested in the cataleptic case resembling death; but it is to be supposed that as long as there is the faintest trace of circulation so long will increased activity in any part of the body produce a corresponding increase of heat. Apropos, this observation leads us to another interesting fact. It is well known that all over in nature rapid motion calls forth heat, and this is the more apparent the more friction attends to motion. Two stones or two metals rubbed together will soon induce warmth, and the Indians are said to be able to start a fire by the violent friction of two pieces of wood with each other. It is said that no law of nature knows an exception, as no

amount of motion or friction will elicit the least warmth in the decomposing tissue. But that some mysterious process of heat regulation is still active within the dead body may be seen from the fact that, no matter what the temperature of the surrounding atmosphere, the surface of the body will go on decreasing in its own temperature until the state of rigidity is ended, and active decomposition commences.—*Medical and Surgical Reporter*.

CYLINDER FILLINGS.

BY W. A. BRONSON, D.D.S.

[Read before the New York Odontological Society.]

The manufacture of gold foil for dental use has, within a few years, reached so great a degree of perfection that its manipulation, in almost any of its forms, can be accomplished with a very moderate degree of skill, through the use of various methods. Four such forms may be said to constitute the principal shapes in which gold is manipulated previous to its introduction into a cavity, viz., the pellet, the rope, the ribbon, and the cylinder.

It is not questioned that in any of these forms gold can be efficiently used. The fact is proved by the thousands of fillings, inserted by the use of each and all of these forms, which have retained their beauty and their saving virtues for scores of years. Neither will we venture to assert that any one of these forms is best for all cases and for all operators. Almost every operator—perhaps as often by accident as otherwise—falls into a method and the use of a form of gold which becomes to him the best method and form, but which to his neighbor might be the least desirable and efficient.

It will be remembered that at a recent meeting of this society the use of gold in the form of cylinders was criticised and condemned. The best way, perhaps, to refute this attack on the use of cylinders is to set forth their claims to efficiency, based upon their detailed merits, and to allow the beauty and durability of work properly done with them to furnish the special pleading in the case.

Upon examining the four forms of gold above named, with a view to comparison of their merits, it would seem that the pellet, which, perhaps, is in the widest use, has the least practical value. It is easily made, by simply rolling a piece of foil into globular shape, thus producing a promiscuous massing of the metal, with the thickest portion of the mass in the centre and a gradual thinning to the circumference. This would seem an efficient bar to general uniformity in condensation.

The rope, a favorite form with many of the best operators, presents some of the bad features of the pellet, in so far as it is made up by a similar promiscuous massing of the metal,—which, however, thins off

towards only two sides of its body,—and this fact, together with its generally smaller bulk, renders it capable of being more accurately placed and condensed than the pellet.

Next is the ribbon, admitting in the hands of a skillful operator of being placed and condensed in successive parallel surfaces—the most homogeneous and sensible way in which foil can be packed. We have seen that the irregularities in the occluding surfaces of foil in pellets and ropes, and their varying thicknesses in different portions of their masses, are objections entirely obviated in the ribbon, which is an aggregation of plane surfaces, flatly presented to each other, and requiring simply to have the air pressed from between them to secure absolute occlusion and (if the foil be cohesive) perfect cohesion throughout the filling. Without this condition of absolute occlusion of the foil surfaces, it is evident that any form of gold, while it may occasionally be efficient, cannot be certainly relied upon to produce the best and most uniform results.

How far, then, can the cylinder be said to possess this necessary condition?

For several years gold cylinders have been sold in the depots, made by laying together several sheets of foil, rolling them, and then cutting to the desired lengths. In this way a valuable cylinder is obtained,—one answering all the ordinary purposes of cylinder filling, but lacking toughness; when it is desired to fold one end over the margin of a cavity, it is too apt to break or cut at the bend.

For the sake of illustration, what is meant by a typical cylinder may be thus described: Cut a sheet of foil into four equal parts; fold one of these parts lengthwise upon itself three times; then catch one end of the ribbon thus formed in a small fork and roll it over the fork to the desired size. If a larger cylinder is needed, use a third or a half sheet of foil in the same way. In this manner a cylinder is obtained accurate in construction, compact but not hard, and one which will not break in manipulation. The principal objection to this method is the loss of time and the labor imposed on the operator; and, when this tax becomes too heavy, the cylinder of the depot must be substituted (and with these a vast gain is obtained over any other form).

In illustration of the way in which the cylinder is used: If a properly constructed cavity is supposed in the grinding surface of a molar, a cylinder of suitable size and length should be placed at some point where it can be secured, fastened and impacted. Against this, and lapping the wall of the cavity, another should be placed and condensed, and so in succession through the whole operation. A finish may be made either with small cylinders or with cohesive gold anchored in the soft gold.

The use of cylinders supposes them to be of such length as to reach from the bottom of a cavity to such length above or out of it as to turn over—be held—and be compacted firmly against the margins. It is be-

lieved that in no other way can such good security be obtained with so little danger of fracture.

Another example of the use of gold in this form is in the filling of approximal cavities. With an instrument of proper thinness and width the gold can be carried to the cervical margin, and as the free end should project a little out of the cavity, it can be carefully folded over the margin, and, as it is also supposed to wedge between the teeth, can be firmly condensed in its place. Each successive cylinder, as the filling is built down the cavity, can in like manner be made to cover the lateral margins, and so, not only can a thoroughly compacted filling be made, but also a contoured one, without the use of cohesive gold.

One other example, of not less importance than either of the two mentioned, is the filling of cavities on the labial and buccal faces of the teeth, cervical or otherwise. A cylinder placed upon the cervical wall of a cavity of this kind, and securely fastened, makes a starting point not to be equaled in any other way.

The examples which have been given illustrate only the ordinary use of the cylinder.

There is another class of cases in which it is nearly indispensable,—forming a base, or foundation, which no other form can be made to do as well. It is sometimes the case that an approximal decay will extend, not only below the cervex of the tooth, but also entirely across the approximal surface, and in the bicuspid and molars especially, forming cavities, deep, broad, and inaccessible. To start a filling in a cavity so located taxes the highest skill. It cannot be done with the rope or the ribbon, for the reason that a sufficient mass of gold cannot be carried in these forms to make a firm lodgment; and the pellet will not do, for the reason that the very nature of its shape makes it impossible to adapt it to the place. But a cylinder, properly constructed in thickness and length, can be carried to the place and firmly wedged; and the very nature of its shape makes it possible to anchor and condense it more securely than by any other method. It may be necessary in some cases to use an entire sheet of No. 4 in one cylinder, and the fact that all the surfaces are parallel to begin with makes the condensation reasonably secure.

Still another instance may be mentioned, in which the peculiar form of the cylinder renders it capable of accomplishing an end impossible for either the ribbon or pellet, and not nearly so well or so easily attained with the rope. Imagining a grinding surface or other cavity having four strong and parallel-sided walls, cylinders of a length sufficient to project somewhat beyond the proposed surface of the filling may be set in and compacted until the cavity is full, and the projecting ends may then, by successive packings and burnishings, be condensed down to the desired level and surface, leaving the surface almost as hard as

though cohesive gold had been used for finishing, and with no danger that the sharp-edged margins shall have been beaten or defaced.

Another consideration of great value in favor of the cylinder is the small comparative time used for a given operation. Very large masses of gold being capable of efficient use, the cavity is quickly as well as properly filled, with the advantage of but small expense of time and labor to the operator, and without prolonged discomfort to the patient.

Finally, the chief excellences of the cylinder may be enumerated as the parallel surfaces of its mass, its peculiarity of shape, and its uniformity of thickness. The parallel surfaces render condensation most easily, thoroughly, and certainly accomplished; the shape, that the body of the filling (in a properly formed cavity) shall be homogeneous,—of equal density all through,—that larger masses of gold may be more safely used than by any other methods of preparation of foil, and that the margins of cavities shall be safer; the uniform thickness, reaching out of the cavity, materially aids in effecting the security of the margins; and, lastly, it would seem that in general better results may be obtained, in the briefest time and with the least labor on the part of the operator and of discomfort on the part of the patient, with cylinders than with any other form of gold.—*Dental Cosmos*.

ON SO-CALLED ABSCESSSES OF THE FRONTAL AND MAXILLARY SINUSES, AND ESPECIALLY ON THE VALUE OF PERCUSSION AS A MEANS OF DIAGNOSIS.

BY W. W. KEEN, M.D.

[Read before the Philadelphia Academy of Surgery.]

I have used the term “so-called abscesses” as, properly speaking, these are not strictly abscesses, but accumulations of pus in normal cavities. But the term, though loosely used, is perhaps the briefest and best, and is not really likely to lead us astray.

Both of these cavities are lined by continuations of the mucous membrane of the nose, and as is natural, therefore, one *cause* of such abscesses is a chronic or occasionally an acute nasal catarrh. Indeed, it is surprising that such results are not more frequent in view of the very numerous cases of the latter malady, whether as a chronic nasal catarrh, or as in the ordinary acute “cold in the head.” In the latter the frontal sinuses especially are very frequently involved, as is shown by the frontal headache and the sudden and abundant escape of thick, ill-smelling, greenish discharge. That abscess of the frontal sinus is so rare is probably due to its effective drainage by gravity, as well as to the size of the infundibulum. In over twenty years of active practice I have seen only the two cases here recorded, and Dr. Harrison Allen, who

saw the first case with me, informs me that in his extensive experience with nasal catarrh that this is the only case he too has seen.

Another cause of abscess in the antrum is dental caries, or alveolar abscess. According to Salter, this is the most frequent cause of antral abscess, and this view is sustained by the number of cases recorded by him, and by Garretson, Jourdain, and other dentists.

Sometimes mere closure of the orifices of these sinuses is sufficient to cause abscesses, by the want of proper "ventilation" of the sinuses, the retention and decomposition of the secretion and subsequent irritation. But this closure is usually merely due to tumefaction of the mucous membrane consequent upon catarrhal inflammation.

Traumatism may also occasionally be assigned as a cause; both accidental, as from blows and such like accidents, or surgical, as *e. g.*, Langenbeck reports two cases following resection of the infra-orbital nerve (*Archiv klin. Chir.*, xi., 1869).

In the frontal sinuses, though occasionally in the antrum also, especially in tropical climates, the larvæ of insects are sometimes causes of abscess, as is mentioned by Allen, Hyrtl, Dumesnil, Bordenave, and others. Galezowski reports one curious case caused by a small splinter of wood in the root of the first left molar, which had been long carious. Low fevers also have occasionally produced such abscesses; occasionally also syphilis.

The *symptoms* are both local and constitutional. The constitutional symptoms are alike in the two disorders, chill, fever, thirst, sleeplessness, etc. But it is to be noted that they may be, and generally are, entirely absent, especially if the case is subacute or chronic, as in both of the cases recorded hereafter. On the other hand they may be of exceptional severity, as in the case recorded by Dr. Muir, of Madras (*Edinb. Med. Journ.*, 1866), in which death occurred in sixteen days from intra-cranial suppuration and epilepsy. Foucher and Van Boeneck also have reported fatal cases.

The local symptoms will vary according to the sinus involved. In abscess of the *frontal sinus* there may be pain in the forehead, often neuralgic in character, and following the nervous branches; a feeling of stuffiness in the head and nose; profuse, or, more frequently, only moderate discharge of nasal mucus and pus. The mechanical symptoms will often predominate; sometimes, as in the case below, to the exclusion of the others. The pus will gradually increase and will cause either expansion of the cavity or perforation of one of its walls. The expansion may be bilateral if there be no partition between the two frontal sinuses, or unilateral if the septum be complete; exophthalmos may possibly result, as shown by Salter and Soelberg Wells. If perforation occur, it may penetrate either of the three walls. Most frequently it will penetrate the thin roof and bore into the anterior fossa of the skull and may cause meningitis; or it may penetrate the floor and so escape

into the orbit, the site of the orifice being in some cases far back in the orbit; or, thirdly, it may open anteriorly above the eyebrow. It should also be remembered that openings may exist in any one of these situations, either as a result of atrophy or of faulty development, as has been best shown by Zuckerkandl. These most frequently exist in the orbital roof. If such perforations occur under the external skin, the escaping pus will form small and gradually enlarging soft tumors, reducible by pressure or by recumbency (an important point), and showing fluctuation if of any size. The character of the contents can then be easily determined by the hypodermic syringe or the exploring-needle. They may readily be mistaken also for sebaceous or other small cysts, or for tarsal or orbital tumors, an error easily corrected by attention to the points just mentioned.

In abscess of the *antrum* the pain is deep-seated, and is apt to be referred to the teeth and the cheek, though it may sometimes radiate to considerable distances; a sense of fullness is perceived; if the nasal orifice is patent, pus will escape from the nose, and it is to be observed that it escapes from only the affected nostril, and if that nostril be cleansed and the patient lie upon the sound side, it will readily refill. If the roots of the first and second molar penetrate the antrum, as is not infrequently the case, the pus may escape by this easy channel and may destroy one or both of these teeth, thus transforming what is a frequent cause of the disorder into an effect. But if the pus be pent up, distention will also occur here, ending finally in perforation. If the orbital floor yield most readily, exophthalmos and even permanent amaurosis may result, as in Salter's notable case. The pus may even pass by the ethmoidal cells and orbit into the cranial cavity, as in the cases of Foucher and Van Boeneck already referred to (Bousquet, *op. cit.*), or it may push down the roof of the mouth, or push out the anterior wall forming the cheek. In all these cases great deformity exists, both from the distention of the bone and the inflammatory swelling and œdema of the soft parts; and if the pus escape through the cheek, instead of the mouth, unsightly depressed cicatrices result. With distention of the anterior wall comes also marked thinning of the bone, so that it will often crackle like parchment, and fluctuation may be perceived. Such swellings may be even mistaken for malignant diseases, and Heath, Agnew, and Broca mention cases of removal or impending removal of the jaw for a disease perfectly amenable to simple operative treatment.

The *diagnosis* of such abscesses is in general fairly easy, based upon the symptoms already stated, but one means of diagnosis that has served me a good turn I have not found mentioned in any of the text-books or special treatises I have consulted, *viz.*, *percussion*. Even in the frontal sinus, if the median septum be complete, percussion will give an appreciable difference of tone on the two sides, the affected side being of course the flatter of the two; but in the antrum this is unmistakable to

a practiced ear. In fact, as will be seen, the diagnosis in the second case to be related was based largely on this physical sign. Of course, it would not assist us to diagnosticate between an antrum filled with pus and one filled with a cyst or a solid tumor, but taken in connection with the other symptoms present, it will go far to make certain that which is already probable. The operative treatment will be discussed later.

CASE I.—Abscess of the frontal sinus, resulting from chronic nasal catarrh ; perforation of orbital roof anteriorly ; operation ; cure.

Rev. Dr. W., æt. 54, for many years a sufferer from nasal catarrh and asthma, about two and a half years ago casually called my attention to a small tumor as large as a large pea, just below the inner end of the right eyebrow, which he stated had existed for some months. Examining it very hastily, I judged it to be a small sebaceous tumor, and told him if it enlarged any to consult me again, when, if need be, I would remove it. I saw him at frequent intervals, and a year or so later observed that it had enlarged slightly and was becoming a mechanical obstacle in opening the eye. He then told me he had repeatedly observed that on rising in the morning it was not perceptible and only reappeared a short time after assuming the erect posture. I found that steady pressure would cause its disappearance in a few seconds, when the finger perceived an opening in the frontal bone about one-third of an inch in diameter, immediately below the inner end of the supra-orbital ridge. Percussion also showed a slight difference in the sound over the two frontal sinuses, the right being slightly duller. He had had for a long time a moderate and somewhat offensive nasal discharge from his nasal catarrh, but no increase recently, and no blood had been observed. Of late there had been a feeling of fullness in the right frontal region, but no real pain or other marked discomfort, and no constitutional disturbance. In view of the physical signs and his chronic nasal catarrh, I then diagnosticated an abscess of the right frontal sinus ; aspiration by a hypodermic needle confirmed the diagnosis by revealing the contents to be an offensive, thick pus. Dr. Harrison Allen kindly saw him also and confirmed the diagnosis and assisted me in the operation. On February 21, 1883, I gave him ether and laid bare the opening by an incision about half an inch long, which gave exit to about two drachms of pus. The probe showed that the right sinus was completely separated from the left by a septum, that it was about half an inch deep antero-posteriorly, and that the internal surface was bare of mucous membrane, a curious fact in view of the complete recovery without necrosis. By a grooved director, slightly curved, I bored a passage with ease into the nose, washed out the sinus with carbolyzed water, and carried a rubber drainage-tube through the upper orifice into the nose and as far as the opening of the right nostril, securing it in place by a thread. The nose was examined by the finger and probe and a small piece of dead bone was removed by the forceps. The bleeding was slight. Moderate re-

action followed for a couple of days, the temperature rising too 100.2° and quickly subsiding. Considerable pus was discharged by the nose. The cavity was syringed thrice daily by carbolized water. At the end of three days, as the discharge had much diminished, a small bundle of horse-hairs was substituted for the rubber tubing, and these were gradually removed during the next five days, when a single hair was left. At the end of the second week this was removed, the discharge then having ceased. The opening closed in a day or two. From then till now, a period of sixteen months, there has been no further trouble, save the nasal catarrh, for which he is now under Dr. Allen's care. The nose, I should say, is very high and narrow and the walls in contact on the right side.

CASE II.—Abscess of the right antrum, arising from a cold in the head; operative perforation of anterior wall; cure.

Mrs. A., æt. 36, delicate woman of a nervous organization, while in the country during the summer of 1882, caught an ordinary "cold in the head," which persisted for weeks in a moderate form with a slight muco-purulent discharge. She consulted me for it in November, 1882, but it was so moderate that I gave her simple remedies and saw her but four times at my office from November, 1882, to March, 1883. As the "cold" still persisted and had rather grown worse, I now examined her with care. She complained of slight pain in the right cheek, extending toward the inner angle of the eye, with a sense of discomfort and fullness. The teeth were sound, and there was no toothache. The discharge was somewhat scanty in the morning, but at about ten o'clock daily she had a pretty free discharge, enough to soil about two handkerchiefs. It was muco-purulent in character, unmixed with blood. From this hour the discharge lessened and was scanty during the rest of the day; it did not waken her at night; the amount varied somewhat on different days. The symptoms of "cold" were limited chiefly to the slight pain and the discharge. The nose was not blocked so as to interfere with respiration, except when obstructed with the discharge. Posture influenced the discharge only slightly. There was no fullness of the cheek, no thinning of the anterior wall of the antrum, no swelling of the overlying soft parts, no deformity in the roof of the mouth or about the orbital floor. Percussion over the two antra, however, revealed unmistakable dullness on the right side as compared with the left. This could only be caused by the growth of a solid tumor in the antrum, or by an accumulation of fluid in a cyst, or of free pus. The history, physical signs, and symptoms all seemed to point to the latter, and accordingly I advised an operation for its relief.

April 5, 1883, after giving ether, I perforated the anterior wall of the antrum, between the bicuspid and the first molar teeth, with a carpenter's triangular "counter-sink," using the instrument found in the ordinary set of tools that come in a hollow handle for household use.

About a half ounce of non-fetid pus escaped. I then introduced a new Nélaton catheter and syringed out the cavity with carbolized water, till the water came away clean. Nearly all of the injection escaped by the nose, thus showing the antral opening to be patulous and explaining many of the observed symptoms. Nothing was used to plug the opening and thus to prevent food from passing into the antrum, but to attain this object the diet was restricted to milk.

The reaction was very slight, the temperature never rising above 99.4° . For six days the antrum was washed out daily in the same manner, using smaller catheters as the opening contracted; two days later the opening closed, and solid food was then allowed. All the symptoms of the cold quickly disappeared, and no trouble has been felt from that time till the present, a period of fourteen months. The cicatrix is not perceptible.

The value of percussion as well as of the hyperdermic aspiration is sufficiently shown by the histories related, and it only remains to discuss the operative treatment.

As to the case of frontal abscess, it is not needful to say anything further; and in reference to the antral abscess, only the point at which it is desirable to puncture needs a few words.

A century ago Jourdain recommended catheterism of the antrum by the natural opening, but the commission appointed by the Academy of Surgery rejected the proposed operation as "difficult and uncertain," and more lately Broca has confirmed the opinion that it cannot be done even on the dead subject. Still more recently Zuckerkandl has proposed to penetrate by an artificial opening below the natural one, where only mucous membrane separates it from the nasal cavity. But such an opening is neither an easy nor a sure operation, in so narrow a cavity as the nose, especially if the side involved is the narrowest one; nor does it provide so effective drainage as the alveolar process or the anterior wall, where the suction of the mouth as well as gravity facilitates the escape of the pus. About the only advantage it has is that it avoids the possibility of the entrance of food into the antrum. But this is not a practical difficulty. Restriction of the food to milk for a few days avoids all danger; and, as a matter of fact, I find that no pains have been taken, or at least are recorded in the published cases, to avoid any such accident, and no mention is made of its having occurred.

Nearly all modern authors, as Heath, Garretson, Agnew, Gross, Bousquet, etc., advise the removal of a tooth and penetration into the antrum through one of the sockets by a trocar or drill, care being taken that the force used at the moment of puncture shall not drive the instrument too far up and so wound the eye. If the first or second molar tooth be so carious as to be useless, so that it ought to be drawn anyhow, or if the disease arise from the tooth, of course it should be removed

and its socket used as a route for the perforation, not, however, by a trocar or drill, but by the surgical engine, as stated by Garretson, since this will penetrate readily, and no danger of wounding the eyeball can arise. The first or second molar should be selected, inasmuch as their roots are directly in contact with the floor of the antrum, and even may penetrate its cavity.

But if these teeth are sound or by treatment can be preserved as useful teeth, they ought in no case to be destroyed. To extract a useful tooth needlessly is little short of a surgical crime, as it inflicts an irreparable and serious injury. In such a case I would strongly advise the perforation of the anterior wall, either by the "countersink," which I used, or by the surgical engine. No special trephine is necessary. The operation is easy, effective and harmless, and its results leave nothing to be desired.—*Medical News*.

PROFESSIONAL SUCCESS FROM A BUSINESS STANDPOINT.

BY LEE S. SMITH, PITTSBURGH, PA.

[Read before the Odontological Society of West. Pennsylvania.]

A long business association with the dental profession, as well as a personal friendship for its members, and a professional pride and interest in the profession chosen by myself, and to which for twenty-two years I have been so closely allied, has induced me to offer the contents of this paper, in hopes that it may not be uninteresting to the older, while perhaps benefiting the younger members of that profession.

While we must ever hold to the truth of the Bible maxim, that "Godliness with contentment is great gain," and the true foundation of all earthly happiness, yet God has properly placed within the breasts of the members of his creation the honest and commendable desire to succeed in a worldly, as well as in a higher sense. Therefore, "Excelsior" becomes the proper watchword of every true man; and a seeking after the true elements of success should be part and parcel of his education. I would therefore say to any young man starting in business to take for his motto, honesty and fair dealing, as the true and best policy.

I am, no doubt, brought tenfold more than you are into a knowledge of difficulties and trials which surround and discourage our young professional brethren, who, leaving your offices as their preceptors, and the colleges as the finishers of their dental education, launch themselves on the great world as practical dentists, soliciting a share of its patronage, with a slow appreciation of their abilities, but an ever-present bill of expenses, in addition to the many professional failures, which must of necessity embarrass them—as weeks and months drag wearily by, as counted by the tedium of waiting for patrons, but hurry, on wheels of

electricity, as computed by the rapid return of rent day, board bill, and other necessary expenses.

I am well aware that many of you have gone through these discouraging experiences, and should therefore have a full appreciation of those following; but, like some great emperor, having attained your present height of professional independence, you lack that sympathy with those struggling below, which you would have had you come into contact with their daily and hourly troubles and embarrassments. This is but human nature the world over.

I have been, time and again, interested in and instructed by the able papers read before your Society, and the discussions following the same; all tending to elevate the profession, and instruct your members, more especially the younger ones, in the true elements of professional success, and ability to properly administer to the wants of their patrons; and it is with an honest desire to add to your good advice and assistance that I shall offer a few practical suggestions on the business side of a professional man's life.

In looking over our busy city and country, and into her great stores and hives of industry, has the question never suggested itself to your minds, why are there so many men book-keepers, clerks, porters, etc., while others starting on the same, or often on even lower footing, in the race for success, fill the chair as bank president, proprietor or manager? If such questions have suggested themselves to you, I think I can, to a great extent at least, assist you to an answer, and I would add that this opinion is not founded on theory merely, but is reached by close and careful study and observation.

It is this (with exceptions of course), the masses of persons who enter the service of others seem to say to themselves, "well, I am employed for so much money, my wages will be forthcoming at the proper time, and it is my duty to myself to do just as little service for my wages as I can do and satisfy my employer." They never, apparently, think that every interest of their employers should be theirs—even from a selfish standpoint—and that the true road to success and advancement, as well as every sense of duty, should prompt them to look after their employers' interests as they would after their own. In other words, so far as it is in their power, they should make themselves so necessary to their employers that they would do almost anything rather than lose their services, even, as in many instances has been done, elevating them to partnership. I dare say the older members of this Society, who have had assistants and students, can verify this statement and the theory advanced. But I imagine I hear some of you say, "in what has this matter of service to do with us, as dentists practicing on our own account?" I answer thus:

We are all in service, one way or another. I am, by the very nature of my business of supplying dental goods, in the service of the

dental profession, and, laying aside all questions of honesty and fair dealing (which, I hope, have no small part in influencing my course of business), it is still to my interest, in every sense, to do everything I can to supply the wants of my patrons, and to minister to their every wish; and, by so doing, to strive, so far as I can, to make my services so essential that they would at least be sorry to part with them.

As to the profession, they are but the servants of the public, and often a most exacting one at that; and, for the same reasons, it is to your every interest to so satisfy and please your patrons, that they will think there is but *one* dentist, so far as their preference goes.

I think I hear some of you say (whom I know, from association, have long since imbibed these principles, and practiced them to your own satisfaction and success), "Do not all, desiring to prosper and succeed, follow these rules?" I answer, most emphatically, *no!*

I have talked to and witnessed the actions of many dentists whose every idea of success seemed to be to get the work intrusted to them off their hands, and the money (often too much for the kind of service rendered) into their pockets, without, apparently, any sincere desire to attach the interests of the patron to their interests, so as to not only insure his return, when more work is desired, but to enlist his influence with his family and friends, so that he may recommend them to *his dentist*.

Let me make my meaning more plain, if need be, by saying that I would advise any one to do just as I would, were I starting in practice, viz., did I get work, I would do it in such manner, by devotion of time and care in every detail of its manipulation, were it either operative or mechanical, that it would stand unsurpassed (providing always that I had the ability) by any similar operation. Of course, that might take time, even sometimes beyond the compensation. What if it did? What is time to the beginner, especially as compared with success? As a rule with the beginner in all professions—and ours is certainly no exception—time is a drug on the market, and as such is too often sacrificed at a figure, that by showing your own undervaluation of your merits, they are correspondingly depreciated in the minds of your patrons.

Then, use the time, after placing a proper price on your operation, in perfecting and beautifying your work. You may have to spend more time and money on the operation than is warranted by the fees, caused, it may be, by inexperience and want of practice, but it matters not. Make the work satisfactory; for in that, rather than in dollars and cents, lies your future success. In short, make every patient your patron and friend, if possible to do so honorably.

This course will not only insure your individual success, but will assist in elevating the profession to which you have allied yourself, by recommending the care of the teeth to the thousands who yet think that

the dental profession is entitled only to days' wages, and that dentistry consists in having the teeth "*pulled*" and having a \$5.00 set put in.

There is one more point in which I am satisfied many members of the dental profession are deficient, and that is in looking almost exclusively to the professional side of their business, by performing excellent operations and studying to give entire satisfaction, and then neglecting the equally important side of the question, in their own interests, by fearing to conduct their business in a business-like manner. I have heard dentists, who have excellent practices, say that they had plenty to do, but that their patients did not call and pay their bills. When asked if they had any system of sending bills and statements, they answer, "Oh, no! I would be afraid of offending my patrons." I have said to such, "How is it with you? Is your tailor, grocer, or others with whom you deal (if you buy on credit) afraid to send in his bills and statements, and then follow them up with his collector? Not at all!" My friends, by adopting business principles and systems for the conduct of your business, you will not only be better off, and have your affairs in a more satisfactory shape, but you will gain the respect of the better class of business men with whom you come in contact.

My relations with the dental profession has been with the honest purpose of trying to assist in elevating that profession, being actuated not alone by financial interests, but above and beyond that, having many of the best and warmest friends I have in the world in its ranks, and a professional pride in its elevation. Therefore, if in these hastily prepared thoughts and suggestions I shall have added one item that will enable a member of this Society to take one step up the ladder of success, I shall be amply repaid.—*Ohio State Journal of Dental Science.*

A DENTIST was sued for pulling the wrong tooth. In explanation the professional gentleman said: "Judge, the man only had two teeth. I asked him which one he wanted pulled, and he said the right one. I pulled what I took to be the one on the right-hand side of his face, but as he happened to be sitting on the left-hand side of the room I made a mistake." "Your explanation is satisfactory," the Judge replied. "The jury will please render a verdict in accordance with the facts."—*Arkansas Traveler.*

DEEP STUDIES.—Let us pursue the subject a little farther, said the medical students at the bedside of a dying patient. So the next night they went out and stole the body from the cemetery.

DR. KOCH has received a grant of \$100,000 for his labors in the cholera-infected districts.

DR. LEE, of England, asserts that carbolic acid is the best substance for disinfecting the air, because, when combined with water and boiled, it evaporates with the steam in a constant ratio, so that the steam contains the same relative quantity of the acid as the water from which it is evaporated. Consequently, the acid can be evenly distributed to the air in a constant and exactly regulated proportion, a property which no other equally efficient disinfectant possesses in so perfect a degree.

THE published report of an English benevolent society says: "Notwithstanding the large amount paid for medicine and medical attendance, very few deaths occurred during the year."

EDITORIAL.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.

It is with gratification and pleasure we note that the trustees of this institution announce that arrangements have been consummated with the Teaching Corps of the Hospital of Oral Surgery, by which their classes will pursue their studies in surgery, chemistry and physiology in connection with the students of that institution under Profs. J. E. Garretson, S. B. Howell and T. C. Stellwagen. The wisdom of such an arrangement is easily appreciated as the clinical service of the "Oral Hospital" is one of the best known and most instructive in the country.

DENTISTS' BENEVOLENT ASSOCIATION.

The first annual meeting of the above organization was held at Sweet Springs, Mo., July 10th, 1884, President Dr. C. H. Darby in the Chair. About twenty-five members were present.

Report of Secretary and Treasurer received and approved. The following officers were elected for ensuing year:

PRESIDENT.

DR. C. H. DARBY, St. Joseph, Mo.

VICE-PRESIDENTS.

DR. F. SWAP, Bonnaville, Mo.

DR. J. J. R. PATRICK, Belleville, Ills.

DR. W. H. EAMES, St. Louis, Mo.

DR. R. E. NICKLES, Salina, Kan.

DR. J. W. REED, Butler City, Mon. Ter.

MR. F. X. COMBS, Chicago, Ills.

SECRETARY AND TREASURER.

DR. R. I. PEARSON, . . Kansas City, Mo.

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 DR. A. C. SCHELL, . . . " "
 DR. J. SHITORD, " "

This Association is duly authorized, by charter from the State of Missouri, to carry out the objects of its organization. Composed exclusively of those identified with the dental profession, and having no salaried officers or other excessive expenses to encumber its progress, it offers to those eligible to its benefits, a cheap and reliable means of providing for their families in case of death. For further information address

R. I. PEARSON, *Secretary*,
 2106 Troost Avenue,
 Kansas City, Mo.

 BOOKS AND PAMPHLETS.

BEECHER'S MANUAL AND DENTAL DIRECTORY OF THE UNITED STATES.
 By M. P. BEECHER, New York. Beecher & Co., 1884.

The portion of this work which will prove most valuable is the "Directory," although the "Manual" is interesting and instructive. We can easily conceive that the labor required to produce a publication of this character has been very great; and as it contains a directory of dentists, in large measure correct and complete, we cheerfully commend it to every member of the profession as a work of practical utility.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY FOR 1884.

J. W. WASSALL, *Secretary*,
 103 State Street, Chicago.

FORMATION OF POISONS BY MICRO-ORGANISMS. By G. V. BLACK, M. D., D. D. S., Philadelphia. P. Blakiston, Son & Co., 1884. Price \$1.50.

This handsomely bound little volume of 178 pages contains a series of lectures delivered by the author before the students of the Chicago College of Dental Surgery, and aims to include only those experiments and observations that seem important to a proper understanding of the subject. While all unnecessary detail has been avoided, everything of real advantage to the general student has been preserved. It will prove a valuable addition to the libraries of those interested in the subject.

DEUTSCHE MONATSSCHRIFT FÜR ZAHNHEILKUNDE.

This periodical, organ of the Society of German Dentists, and successor to the "Vierteljahrsschrift für Zahnheilkunde," ran through twenty-two volumes under the last-named title, and began its second volume as a monthly journal with the year 1884. It has for its contributors the following writers: Drs. Baume, Herbst, von Langsdorff, Muhldreiter, Parreidt, Petermann, Schlenker, Witzel, etc. It contains, besides admirable original compositions, excellent translations from the French, English, American, Italian and Spanish journals of dentistry.

This monthly journal is published by Arthur Felix, 18 Königsstrasse, Leipzig, at 14 marks per year (with postage added, costing American subscribers about \$4.10). Subscribers can procure it through booksellers here and in foreign countries.—*Dental Cosmos*.

THE QUERIST.

Will some one please tell me how I am to overcome a trick, which an infant under my charge has acquired, of continually sucking its lower lip? The child is a year and a half old, and an invalid for the last nine months; does not take its food except in very small quantities at a time, and then always from a cup. I have suggested a return to bottle-feeding for the beneficial effects of the nipple, but as the child's vitality is small, and feeding essential, this cannot be readily accomplished. I have tried a gag across the mouth, also the placing of obnoxious substances on the lip, etc., but without effect. The lower jaw is now beginning to perceptibly flatten, and the upper to protrude. Will such changes be likely to remain should the habit be overcome?

THE *Dental Practitioner.*

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A PARTLY LOST MOVEMENT OF THE JAW.

BY THOS. S. SOZINSKEY, M.D., PH.D.

A few years ago I took part in opening some "mounds" in western Missouri. Numbers of jaw-bones of the "Mound-Builders" were found, and peculiar features of the teeth in them led me to study them somewhat carefully. The fine collection owned by the Kansas City Academy of Science afforded me an opportunity to examine many specimens. Being much interested, I wrote a short article, entitled, "The Teeth of the Mound-Builders," which was published in the *Dental Cosmos*, September, 1878, and attracted considerable attention.

In the article referred to, after speaking of the soundness and regularity of the teeth examined, I said, "The canines were not particularly noticeable in any; but in all, I believe, the incisors were large and almost circular in form,—a very noticeable thing. The crowns of all the teeth were worn more or less flat, and to such an extent in many of them that they were nearly on a line with the gums. This gives the front teeth a very peculiar appearance."

The appearance of the teeth examined suggested the following comments:

"Now, the Mound-Builders evidently lived on food that required much chewing,—likely, it was for the most part, if not entirely, uncooked. It is scarcely possible that the principal portion of their food could have been flesh, and yet their teeth be ground down as we see them; still, if they used it raw, it required a great deal of grinding. They rarely tried their teeth on nuts or uncooked grains, for if they had done so it is more than probable that they would have been more or less chipped; but no such accident is apparent in any of those that I have examined. The incisors being ground down flat on the crowns, it would not seem that they were in the habit of dividing their food into mouthfuls with their teeth; on the contrary, it would indicate that it was divided into mouthfuls by some mechanical method. The front teeth, however, which are kept sharp by biting the food off into pieces, may of necessity have become ground down when the molars and bicuspid were ground

off to a certain extent, that is, if we are to believe that in every individual the front teeth of the lower jaw met those of the upper directly, which, at least in our race, is rarely the case. *But it may be they gave their lower jaw a peculiar turn in eating, unknown to us, which would account for the truncated condition of their front teeth."*

The idea expressed in the sentence given in italics is one about which I have often thought since it was published. So far as I know it originated with me. However, I came across it recently in a volume of the International Scientific Series, "Man before Metals," by N. Joly, published in 1883. M. Joly's interesting statements are as follows:

"As regards the mode of eating, the incisors of the primitive inhabitants of Switzerland, Aquitaine, Belgium, and Denmark, prove that these people chewed their food in a manner completely different to ours. Their incisors, instead of being shaped like a chisel, present a flat surface like the molars. The explanation of this peculiarity is perhaps to be found in the fact that roots and coarse bread formed the staple diet of primitive man in the neolithic age. In the action of mastication the two jaws were placed one above the other in such a way that the incisors of the upper and lower jaws corresponded exactly, and did not cross. It appears that the ancient Egyptians ate in this manner, as the modern Esquimaux and Greenlanders still do." (p. 205.)

Perhaps it is going too far to say that the primitive peoples referred to "chewed their food in a manner completely different to ours." The manner was doubtless essentially a pronounced grinding swing of the lower jaw, such as is witnessed in animals that chew the cud. In the absence of this movement, man masticates his food like the carnivora; but it is not entirely absent in many. Besides the vertical there is usually, also, more or less of a lateral and forward movement of the jaw in eating. In many, however, it is slight, and in not a few, almost entirely absent. On the other hand, some still give the jaw a decided lateral and forward movement. In such cases the front teeth are apt to become ground flat like the molars.

I may remark that it is more than probable that if people still gave the jaw a decided lateral and forward swing in eating, decay of the teeth would not be so common, because accumulations about the gums would hardly be possible. At any rate it is certain that the teeth of the primitive peoples who ate in such manner, were wonderfully sound.

I may further remark, that the partial loss of the swinging movement of the jaw has tended to change the facial outline of people; it has been attended with an increase in the length of the visage in proportion to its breadth. Varied movements of the jaw require bony and muscular development sufficient to produce them. The external and internal pterygoid and the masseter muscles have little to do if the jaw is moved only vertically. Of course their size would be expected to be largely in proportion to the use made of them.

MEDICO-CHIRURGICAL COLLEGE.

CLINIC ON ORAL SURGERY,

BY PROF. GARRETSON.

CASE I.—Neuralgia of parts supplied by branches of the infra orbital nerve. Emphasis was laid by Prof. Garretson on the fact of the pain known as neuralgia being the result of a cause, and that until the cause was discovered, all treatment, whether resulting in relief or not, partakes only of that empiricism which all condemn. The patient before the class had suffered, with a few brief intervals of comfort, for three years. Various remedies had been tried, amongst others giving relief being a Volta's pile, applied every night to the face. This is made by taking pieces of zinc and copper; galvanic action being produced by placing a strip of woollen cloth saturated with cider vinegar between the plates. Another usually good remedy, but one which only afforded temporary relief to this patient, was the following:

R.—Ferri. sulphatis,	Ex. }	aa. gr. cl.
Pottassii carbonatis.		
Syr. acaciæ.	q. s. ft. pil. No. 100.	

S.—Begin with three each day and increase to six.

Other prescriptions were tried, but still the gentleman returns and tells us he is in constant pain, ready to grasp at any method of relief recommended. The means employed as an obtunding agent was an hypodermatic injection of morphia, a quarter of a grain in about ten drops of water. This was introduced with a needle-pointed syringe immediately beneath the skin on the left side of the nose, care being taken to avoid rupture of the areolar tissue.

Hypodermatic injections are frequently followed by abscesses, but if caution is exercised in the introduction of the point of the syringe, no such trouble should occur. Care should also be taken to avoid entering an artery or vein, or forcing air into the subcutaneous tissues. also, observation should be made that all the salts of the medicament used are dissolved before the injection is made. While condemning the treatment employed, the Professor acknowledged himself as ignorant as the youngest student before him as to any surgical treatment to remove the cause of the pain, but thought it better to choose the lesser of two evils—the choice being between intense suffering or temporary ease.

CASE II.—The patient, a colored man, complained of pain in the region of the sciatic nerve, this being nothing more than another phase of neuralgia, the immediate cause being rheumatism.

To relieve him, an hypodermatic injection was made, consisting of eight drops of chloroform, the syringe being introduced its full length into the muscles of the gluteo-femoral crease. The patient, though suffering acutely when he entered the room, left half-an-hour later with the pain allayed. The injection was repeated two days after with a like result. A practical suggestion made by the Professor was that hypoder-

mic injections of chloroform in the sciatic region are beneficial, but exactly the reverse when applied about the face.

CASE III.—Showed disease of the inferior maxillary nerve and of its mylo-hyoid branch, the intention being to exsect the nerve at the base of the skull, the foramen ovale being reached without visible scar resulting on the face, and without injury to the lower jaw.

The line of the cut being first drawn upwards to avoid injury to important parts, an incision was made one inch above the angle of the jaw downward, and one inch forward in front of it, this line being below the ridge of the bone so as to hide all appearance of after scar. The facial artery being cut was ligated, and retractors introduced into the wound, exposed the bone. A raspatory was then used to scrape away such portion of the periosteum as was necessary. Next, with the surgical engine and bur, revolving about ten thousand times a minute, an opening was made through the bone into the dental canal, uncovering the nerve; this was cut, the end next the brain being held by means of the bull-dog forceps, its course was followed by the bur until the posterior dental foramen was reached. The next step was to enlarge the foramen, which was done with the same instrument without difficulty. Profuse hemorrhage occurred at this point through cutting the inferior dental artery, but it was easily checked by a ligature. Enlargement of the foramen having been secured, the nerve was lifted from its surroundings, and, with a fenestra, the Professor was enabled to pass the length of the zygomatic fossa and reach the foramen ovale in the sphenoid bone, completing the operation by severing the nerve at the foramen with a tenatome. In two days' time a couple of stitches were removed to allow the pus which had formed to discharge, two sponges having previously been placed immediately below the wound, causing constant pressure upon the part, thus preventing the pus burrowing within the tissue. One week after the operation, the patient appeared relieved from neuralgic pain, and union by first intention having been gained, every reason for congratulation was felt for his successful cure.

The Professor remarked, and impressed on the class the importance of after attention in all operations of this nature. Not the least of the complications liable to arise being erysipelas, for which he has found the best treatment, in fact almost a specific, in the following prescription:

R.—Tincturæ ferri. chloridi,	ʒj.
“ cinchonæ,	ʒij.
Quinæ sulphatis,	ʒj.

S.—To be brushed over the parts every hour.

CASE V.—Was one of lupus erythematosus. Epithelial cancer not infrequently presents the appearance as shown in this patient, and if it were not learned that the trouble had appeared eighteen months previously, and been under treatment during that time ineffectually, it might have been classed as a simple condition; but history in such a case is all important. The position of the lesion also excluded from the diagnosis

the probability of its being epithelial cancer, as that is almost invariably confined to the lower jaw, the sore in this case being nearly in the center line of the upper lip. Treatment for this condition is tentatively, by application of oxide of zinc ointment, by caustics, or radically, by making a V incision and cutting out the whole of the involved part. If caustics be used, there must be no half-way measures, as such a condition demands the necessity to get to the bottom of the perverted cell tissue; merely touched to such a place as this, as is so frequently done, they are worse than useless; they must be "used with radical freedom or not used at all." The patient having her choice of either treatment, decided on the operation, which consisted, as previously stated, of a V-shaped incision being made through the lip and removal of the involved portion; in doing which the coronary artery was necessarily cut. Ligatures were applied to check the hemorrhage, and the parts were then drawn together and fixed by means of two steel pins, bringing the edges of the wound in direct apposition, strips of adhesive plaster being passed over the pins to prevent undue tension. Union by first intention was so thoroughly gained as to justify the removal of the pins the following day, and the patient was brought before the class one week later—trace of the operation being almost imperceptible. The general health of the lady being frail, she was somewhat prostrated by the operation, so the following prescription was prepared with a view of building up and increasing her vitality.

R.—Quinæ sulphatis,	gr. xx.
Ferri. pulveris,	gr. xxx.
Ext. nux. vomicæ,	gr. iv.

M. et ft pil. No. 15. One to be taken four times a day.

CASE VI.—Patient presented, complaining of incessant pain in left side of lower jaw. Examination revealed unhealthy appearance and giant granulations, suggestive of serious trouble being present. On inquiring for some history, patient informed the class that he had had some teeth extracted several weeks previously, but the pain still continued. The Professor now made an incision through the gum tissue into the bone, causing considerable hemorrhage, which showed the parts were congested, and further examination diagnosed the case as one of otitis arising out of a periostitis. The ragged, unhealthy condition of the parts, suggested the presence of epithelial cancer, carcinoma not being uncommon in this position, but in such cases caution must be observed, the remark being made "we must go gently, we must feel our way" before deciding upon something out of the common. Knowing then, without a doubt, that inflammation is present, the indication is to first remove that by means of antiphlogistic treatment, the patient being instructed to apply dilute phenol sodique to the parts four or five times each day, and return in one week; if, at the end of that time, the inflammation has not resolved itself, and the giant proliferation still exists, it will be recognized that treatment for the more serious lesion is necessary.

CASE VII.—Elongation of the uvula—This is a most common condition, and one which, if not corrected, is frequently followed by serious trouble, not the least being phthisis pulmonalis.

This patient had been annoyed by a short spasmodic cough and irritation of the throat for some time. On examination it was found that the uvula had become elongated and hung down into the pharynx, irritating the epiglottis and mucous membrane of the surrounding parts. The treatment simply consisted of catching the tip of the uvula with a tenaculum, and, snipping off with a pair of scissors, curved flatwise such portion as is indicated. Very slight bleeding results from this operation, but a feeling of rawness is felt for two or three days, which is relieved by the patient keeping gum arabic in his mouth, to lubricate the parts.

B.

SOLDERS AND SOLDERING.

There are very few dentists but have more or less dread of soldering a full upper denture of gum teeth. The fear of cracking the teeth, or warping the plate, makes the most phlegmatic person somewhat nervous; this nervousness lasts all through the operation, destroying the calmness that is necessary to do good work. A great deal of this feeling results from a want of practice, or knowledge of the materials, and application of the proper heat.

If the solder has been purchased from a depot, it doubtless varies in fusibility, or a want of affinity to the gold or silver plate; possibly the materials of the solder have been improperly or imperfectly melted, resulting in balling or non-fusion of the solder. This variability must be expected to occur where parties make it for others to use, not testing it themselves before selling. It takes but a few minutes to make a small piece of solder, if the materials and appliances are at hand, resulting in a saving of time and money, and a better knowledge of what you are using. It will be necessary to keep in mind, the fact that solder must flow at a lower point of fusion than the plate, for, if too high, the plate will be so much softened that it would be likely to warp out of shape in the soldering process.

Metals are said to unite with each other in definite proportions when in a fluid condition. This seems to agree with the experience of experts in mixing metals. However true this may be in theory, the practical results are very limited, but there is no doubt that metals have mutual affinities which result in some solders having more good working qualities than others, such as free flowing, polished surface, and ready affinity to the plate.

The only reliable metals to mix with gold and silver for solders are copper and zinc. The fusing point of zinc is 773° . When forming a part of solder it brings down the fusing point quickly, and is very volatile

when melted, flying off in vapor, thus making it difficult to obtain uniform alloys. To get over this difficulty as much as possible I have been using, for the last few years, a good quality of brass wire, composition of which is about 70 parts of copper to 30 parts of zinc, thus using the copper and zinc in combination instead of adding them separately.

Silver solder should fuse at a dull red heat; gold solder at a full red heat. In either case, when heated up to the proper degree, it should run quickly, and not allowed to remain too long at the melting point, or too frequently melted, as the solder might eat into and melt a hole in the plate.

After a long course of experimentation some years ago, I selected the following system of recipes as the best for practical use in the laboratory. It will be seen that they are based on 18-karat gold instead of pure gold or gold coin, as directed in the old style of recipes. This plan lessens the amount of alloy to be added, and gives a chance to use the gold scraps and filings laying around. It frequently happens that it is necessary to make a small piece of solder when hurried, and time is limited, and these recipes are so formed as to be easily put together in large or small quantities.

USUAL GOLD SOLDER.

Gold Plate, 18-karat,	1 dwt.
Silver Coin,	2 grs.
Brass Wire,	4 "

THIN FLOWING GOLD SOLDER.

Gold Plate, 18-karat,	1 dwt.
Silver Coin,	2 grs.
Brass Wire,	4 "
Zinc,	1 "

These two solders are very near 15-karat fine, are of good color, and tarnish but little in the mouth. The first recipe is a good filling solder, and does not spread much. The second spreads over the plate more, at the same time, fuses at a lower point of temperature. An 18-karat solder is made by substituting gold coin in the place of 18-karat plate, but requires more heat than the first two recipes.

The two parts of silver is added to toughen the solder, so that it may be rolled or hammered without much cracking. Solders are harder, and not so dense as the pure metals; they are less malleable, and require frequent annealing when rolled or hammered.

USUAL SILVER SOLDER.

Silver Coin,	1 dwt.
Brass Wire,	8 grs.

THIN FLOWING SILVER SOLDER.

Silver Coin,	1 dwt.
Brass Wire,	6 grs.
Zinc,	2 "

The first recipe is a good filling solder and spreads but little—the linings can be thickened with it and still be securely soldered. The last solder flows quickly and spreads over the plate, and is not good for filling—but is good when but little solder is needed on the plate for neat work.

Small lots of gold and silver solder are very conveniently mixed and melted with the blow-pipe on a flat carbon crucible, taking but a few minutes time and no danger from loss by accidentally spilling in the fire, as frequently happened with the old style three corned-crucible, and coal fire.

The flat carbon crucible is easily made by any one, it consists of equal parts of clay, asbestos, plumbago and pumice, powdered together and mixed with sufficient water to make a putty-like mass—that can be pressed into a mould, made of a piece of tin plate, three inches square, with the sides turned up straight to form a square box. The mould being filled, the middle is depressed by forcing the soft mass away with the flattened end of a round stick, an inch and a half in diameter, so as to make sufficient depression to hold the metals from running over the edge when melted—the crucible is dried before using.

In combining the metals for solder—the proper rotation in melting must be observed—in gold solders, the gold and silver are placed in the crucible and melted first, the brass wire is then picked up with a pair of tweezers—held in the flame of the blow-pipe to heat it enough to coat it with powdered borax, some of which ought to be in reach, it is then plunged into the melted gold and silver and when entirely melted, given a shake to mix it; the zinc is to be added last, in the same way, while still soft a small hammer is pressed on to flatten it—the adhering borax is dissolved off with diluted sulphuric acid—rolled or hammered thin enough to cut, if it cracks during the thinning, it should be annealed at a very low red heat.

The process for silver solder is the same, except the silver is melted alone at the beginning—the brass and zinc is added in the same way as in the making of gold solder, as explained above.

The next paper will be on soldering.

DR. W. R. HALL.

HAVING A NERVE CAPPED.

THE AGONIES A YOUNG MAN SUFFERED FROM A RAGING TOOTH.

“Did you ever have a nerve capped?”

The Chicago News man replied that he had never experienced that pleasure.

“Well then,” said young Mr. Smith, “your ignorance on that point is truly blissful. Now gratify your yearnings for wisdom in that direction and you’ll be happy.”

The reporter meekly suggested that he had had several three-pronged, double, back, ulcerated teeth drawn by a muscular dentist, with a pair of pincers, and was still alive.

“That’s all well enough in its way,” returned Mr. Smith, indifferently, as though having a double tooth drawn was a matter of daily occurrence with him; “but if you’ve never had a nerve capped, if I were you I wouldn’t converse too freely on the subject of dentistry; you could but betray your ignorance.”

Regarding admiringly, yet not enviously, the man who had lived through anything worse than pulling teeth, the reporter begged young Mr. Smith to proceed with the details of his trials in the dentist's chair.

"I can masticate shingle nails now," began Mr. Smith, snapping his teeth together with a report like the explosion of a toy torpedo, to illustrate their healthy condition, "but less than two months ago even the hash they gave us up at the house was a sore trial to me. I had a cavity on each side of my lower jaw as large as a bean, and in each the nerve was exposed. I couldn't eat on either side, and in consequence of swallowing my food in chunks I was becoming a chronic case of dyspepsia."

"You should have confined yourself to spoon victuals."

"No, hash is my limit in that direction, teeth or no teeth. I discovered that fact one morning when late to breakfast. I was bolting the mixture recklessly and got one right on top of my tenderest nerve. It was a little round shoe button with a brass eye, and when my jaws came together on it I whooped like a Sioux Indian on the war path, only louder. I threw my plate, containing the remainder of that hash, at the girl's head, which I missed and smashed a chandelier. I then started on a run for the nearest dentist shop, determined to have those teeth annihilated, root and branch. 'You don't want those teeth drawn,' said the dentist, as he poked around my tenderest nerve with that buzz-saw arrangement they run by a treadle. 'We never pull teeth here; the practice is a relic of barbarism long since discarded by intelligent dentists.'

"Pull 'em out," said I; "barbarism or no barbarism, I've had enough of 'em."

"Oh, no," said he; "we'll cap the nerves and put in a silver filling and those teeth 'll last you fifty years."

"I let him have his own way, and after boring out the inside of my molars until the nerves stuck up in bold relief half-an-inch or so, he filled up the cavities with something that looked like putty, but which in fifteen minutes was as hard as the teeth themselves. He said that I could eat on them, and in a week, if they didn't ache, to come back and have a silver filling put in on top of the caps. This was on Monday. Everything was lovely until Saturday night, when I went into the country about 40 miles to spend Sunday. It was a small place and no trains back to the city until Monday morning. On the way out one of these blessed teeth of mine got unruly and began to grumble a little, but it was a gay crowd I was visiting, and I had forgotten all about the tooth by the time we sat down to supper. Just as the old gentleman was about to ask the blessing, I drank a glass of water. The old gentleman is very religious, and when there's company it always takes him about fifteen minutes to say grace. It took him twenty that night, and all the time he was thanking the Lord for health and happiness, that precious nerve of

mine was writhing and twisting in its prison and coiling up like a snake ready for the fatal spring. The old gentleman had hardly gotten 'amen' out of his mouth when it sprung. I jumped about three feet high and uttered the most blood-curdling yell ever heard in that section of the country. The old gentleman thought I took exception to some sentiment expressed by him in the blessing he had just asked, and was getting very mad and red in the face, when he noticed that as I jumped up and down and howled and waved my napkin frantically in one hand I was holding my jaw in the other with a determined grip, while my eyes rolled in agonized desperation. The entire family at once grasped the situation and rushed to my rescue. The old gentleman forced a large-sized chew of tobacco into my mouth, the old lady sprinkled me plentifully with camphor, while the girls held a flat-iron on each side of my face. For fully five of the longest minutes I ever passed through that nerve got its work in in a way I despise. I could feel it coil all up in a knot, and about every other second it would straighten out with a snap that would raise me right out of my chair. After awhile it got down to business, and just sat still and ached. I then spit the tobacco out—I never chew it and it made me sick—and told the old gentleman it was no use; the nerve was capped and nothing could be done for me; my time had come and I'd got to die, but as a last request I made him promise to have the entire race of intelligent dentists who capped nerves exterminated from the face of the earth."

"Why didn't you resort to the aforesaid relic of barbarism?" inquired the reporter, as Mr. Smith paused for an instant, overcome with painful recollections of his dental trials.

"There was no dentist in the place. I did get the old gentleman to work with a pair of gas-pliers, but it was no use; they slipped off every time, and I soon discovered that unless death came to my relief I would have to grin and bear it until Monday morning. I pulled through somehow—I never knew how—and took the early train for the city. I went back to that intelligent dentist with blood in my eye. I told him to pull that tooth or take the consequences. He only smiled and said that tooth was too valuable to lose and that he would simply take the cap off and destroy the nerve, after which the tooth could be filled with good results. I accepted the dentist's proposition with fiendish joy, and begged him to show no mercy to a nerve which had showed such utter disregard for the comfort of its fellows. The nerve was killed, the tooth was filled, and when my dentist bill is settled and that chandelier is paid for, and the dyspepsia eradicated from my system, I shall be a comparatively happy man."

Four sisters named Carr were married at Joliet, Ill., one evening last week, and the clergyman who married them desires to be called a patent Carr coupler.

PASTEUR'S LABORATORY.

In the Rue d'Ulm, close to the Pantheon, in Paris, stands Pasteur's laboratory. Rarely the famous experimenter leaves the scene of his great discoveries. He is continually at work, leaving nothing untried that might throw a ray of light upon his researches. Although long past the prime of life, he still possesses the indomitable energy that characterized his youth. In his workshop the scientist keeps cages filled with dogs, rabbits, chickens, and other animals to be used in his experiments. When once an animal has been injected with the fluids containing the minute animal life upon which, as Pasteur claims, all disease depends, it never leaves his watchful eye. Closely he observes every change in its condition, and, when the time has arrived to kill the animal, he consoles himself with the thought that science demands the sacrifice. The whole basement of the laboratory is transformed into a miniature menagerie. The rabid dogs are Pasteur's favorites. He has provided neat little iron cages for less enraged pets, and often sits before them for hours watching the mad antics of the animals, who snap and snarl at him continually. Pandemonium reigns supreme in this section of the laboratory, but Pasteur seems totally oblivious to the noise which, to the casual visitor, is so distressing. Some are in the first stages of the disease; they tear about their limited quarters, biting at the iron bars and chewing up the hay intended for their beds. The ones only recently inoculated are still affectionate, and retain their moist eyes so full of tenderness. They recognize their master, and come forward at his call as if to be petted.

The chickens, large and small, crane their necks and keep up a ceaseless crowing.

The pink-eyed rabbits are the quiet members of Pasteur's large family. They chew away at the cabbage-leaves with which they are fed, and quietly await their turn to become martyrs of science, while the cute guinea-pigs huddle together, ever watchful for the approach of an enemy.

All of them are destined to be inoculated some time or other, and there is no hope of any of them surviving the experiments of the great Frenchman. Every morning Pasteur pays a visit to the hospital and sees that his sick pets are well cared for. Those which have died during the night are removed to the floor above, and laid upon the dissecting table ready for Pasteur's knife. This is not the only material upon which Pasteur works. From all parts of France he receives coops full of chickens that have died from cholera and other diseases.

In the corner of the large room there are huge baskets filled with straw. One contains a pig supposed to have died from erysipelas, another is filled with the internal organs of a pleuro-pneumonic cow, while scores of them, carefully labeled, are sent by naturalists who, unable to prove their own observations, seek his advice.

It is not only animals upon which Pasteur experiments. Ever since he visited Pavillac, three years ago, to investigate the causes of yellow fever, he is never without samples of *vomito negro* (black vomit), which is sent to him in hermetically sealed bottles from the infected ports. Pasteur never throws anything away. The contents of the bottles are carefully desiccated and the residue is placed in the propagating room. Here there are shelves and tables for the reception of glass jars, in which he keeps the culture-liquids.

By careful manipulation the dry residue is re-dissolved, and the microscopic animal life allowed to go on increasing. This is Pasteur's favorite working-place, surrounded by his assistants, Chamberland, Roux, Joubert. The death of Thuillier, his favorite co-worker, who died in Egypt while investigating the origin of cholera, robbed Pasteur of a valuable aid. Thuillier was the first to discover the presence of microbes in the tissues of animals, that of erysipelas, and that led Pasteur to continue the investigation and prove that the microbe depended upon the disease. He began to inoculate animals with fluids containing the microbe, and by this means was enabled to reduce the mortality in the rinderpest, which in former years played sad havoc with the cattle in the southern part of France.

At present Pasteur is devoting his energy towards solving the problem of hydrophobia. The results of recent experiments have led him to believe that by means of inoculation it can be successfully cured. He has already inoculated large baboons, and has reason to feel satisfied that he is on the right track. He has demonstrated that by transmitting the virus from the lower orders of animals to the higher it loses strength, until finally only trifling disturbances are caused by its injection. He is confident that at no long distant day he will be able to inoculate human beings. The perfection of this theory he considers the greatest work of his life. Conversing with a friend recently, he said that he was not ready to die until he had proved that hydrophobia is but a minor ill to which the human family is liable.— *Paris Cor. Vienna News Freie Presse*.

THE TREATMENT OF CHOLERA.

Dr. Alexander Harkin thus writes in the *Lancet*, August 16th, 1884:

The disease and its treatment naturally divide themselves into three stages: the pulmonary, or diarrhœal; the stage of violent purging and vomiting and cramps; and that of collapse.

For the diarrhœa nothing in my experience answers so well as dilute sulphuric acid, which should be administered every hour in doses of twenty to thirty drops in some agreeable menstruum, with mustard or turpentine epithems to the abdominal region, and iced water when

available *ad libitum*. Should the second stage supervene, it is necessary to take decisive steps, lest the third rapidly develop.

It is in the second stage that my peculiar experience becomes available. Physiologists teach that the phenomena of vomiting and purging depend altogether upon the nervous mechanism of the organs affected. According to Michael Foster, "the dilatation of the cardiac orifice is caused, in part at least, by efferent impulses descending the vagi, since, when these are cut, real vomiting with discharge of the gastric contents is difficult, through want of readiness in the dilatation. Since the vagus acts as an efferent nerve in causing the dilatation of the cardiac orifice so essential to the act of vomiting, it is difficult to eliminate the share taken by the vagus as an afferent nerve, carrying up impulses from the stomach to the vomiting center" (pages 275-6). The influence of the vagus is thus demonstrated in the act of vomiting, both as an afferent and an efferent conductor of nervous energy. Kolman, too, quoted by Hall,* has shown that the right pneumogastric supplies the whole of the small intestines. "This is an inhibitory nerve," he says; "and Moreau and Lauder Brunton have demonstrated that the division of all the nerves going to a portion of intestine is followed by the secretion of a fluid just like rice-water stools of cholera. May not the stimulation," Hall continues, "of the inhibitory vagus be followed by results much the same as if the sympathetic supplying the small intestine were paralyzed?" In accordance with these physiological views, I have latterly treated every case of English cholera in the second stage by remedies applied to the pneumogastric nerve in the cervical region, with the satisfactory result of putting an end at once to the profuse vomiting and purging so characteristic of this stage. Arguing from its controlling effect in extreme cases of English cholera and cholera infantum, which our best authors say differ only in degree from the Asiatic type, I have every confidence that it will prove equally useful should the latter epidemic gain a footing in this country. There is another important indication, which will be sub-served by counter-irritation over the vagus—viz., the restoration of the cardio-inhibitory function of that nerve; thus the violent contraction of the heart will be controlled, the expansive power of its cavities restored, and the congestion of the pulmonary and arterial system put an end to. The application I have always used is the epispastic solution of the Pharmacopœia, applied freely with a brush behind the ear and on the neck as far as the angle of the lower jaw. No matter how violent the vomiting or purging, I have never failed in stopping both by this application; a stimulating effect is produced at once and with it all gastric disturbances cease.

For the stage of collapse, which according to Claude Bernard, is due to great irritation and hypertrophy of the sympathetic nervous system, Dr. Hall who has seen a large amount of cholera in India,† pro-

*British Medical Journal, vol. ii., 1874, p. 600.

†Ibid., vol. ii., 1874, p. 254.

posed to the Royal Medical and Chirurgical Society of London, on October 13th, 1874, a plan of treatment which received the approval of the Society, as well as of Sir Joseph Fayrer, who was present. He recommends the subcutaneous injection of a solution of chloral hydrate, 10 grains in 100 parts of water, in four or five different places, according to the size of the syringe. If reaction does not commence in an hour, he injects again. The sedative soothes the contracted nerves, and relaxes the contracted vessels; the blood is once more uniformly distributed, and consequently the pulse reappears at the wrist, the cramps and abdominal pains subside, sleep is induced, the respiration becomes regular, the discharges lessen, the face fills out, the voice becomes stronger, and the natural secretions are restored. Mr. Higginson, in his report to the Deputy Commissioner at Keri, Oude, states that he has treated nineteen cases of cholera according to Dr. Hall's method, of whom seventeen recovered, being about 89 per cent. of cures. For purposes of illustration I append a statement of two cases out of many which I have treated during last autumn.

Case 1. *English Cholera*.—Constable C—sent for me on September 18th, 1883, at 8.30 A.M. I found him in the act of vomiting, with small quick pulse, violent cramps, forcible palpitation of the heart, great debility, faintness, and coldness, of the extremities. He was purged at frequent intervals, and the dejections were of the rice-water character. He informed me that when on duty in the police cells at 4 A. M. that day, he was attacked with profuse vomiting, followed in an hour by violent purging, with cramps, an attack occurring about every fifteen minutes. I did not order him any medicine, but painted him at once in the hollow behind the ears down to the angle of the jaw with an epispastic solution, assuring him that he would not have any return of his symptoms. I visited him again at 10.30 A.M., and found him quite convalescent, not having had any sickness or suffering, as I predicted.

Case 2. *Cholera Infantum*.—On September 24th, 1883, I was summoned to see a child living in Upton Street, Belfast, aged 20 months, at 11.30 P.M. I found it lying on its face across its mother's knee, with its arms and legs lying listlessly at either side; it was purging and vomiting at the same time. The child was almost pulseless, and was cold and feeble. The mother informed me that it had sickened at 6 P.M., and that it had vomited at least every quarter of an hour till the time of my arrival. She attributed its illness to a mess of soup which it had taken the previous day. She had administered milk with lime-water, without any benefit. I did not recommend any medicine, but, having had the child placed on its back, I painted it with the blistering fluid behind both ears, informing the mother that from that moment both vomiting and purging would cease. Soon after the application of the remedy the child began to improve, the heat returned to the extremities,

and at the end of half-an-hour it was fast asleep, when I left for the night. Calling at 10 A.M. the next day, I saw the child in its mother's arms, looking quite lively and well. As I foretold, both vomiting and purging had instantaneously ceased.

There is no need of multiplying examples; these two are the representatives of a great number, irrespective of cases of bilious vomiting and gastritis from alcoholism, similiary and successfully treated.

In the cases related I applied the remedy behind both ears; in several others I found the single application behind the right ear sufficient for the purpose; and this appears to me preferable to the double blister, as, from its powerful inhibitory effect upon the heart as well as upon the abdominal viscera, the modified application is perhaps the safer. In these cases of severe suffering any one can understand the satisfaction that is felt when he is justified in saying, "Permit me to apply this external remedy, and all your troubles will at once depart."—[*Med. and Surgical Reporter.*]

DIFFERENTIAL DIAGNOSIS.

BY CHARLES J. ESSIG, M.D., D.D.S., PHILADELPHIA, PA.

[Read before the Pennsylvania State Dental Society, July 29, 1884.]

Pain or discomfort in or around a tooth, while usually the first symptom of a deviation from the normal condition, either of the dental pulp or of the surrounding tissues, constituting simply inflammation of either of these parts, may yet be merely sympathetic, and the organ seemingly affected be perfectly sound. The differential diagnosis of the cause of these troubles, therefore, often demands much care and intelligence.

The causes at present recognized of pain in or around the dental organs are not only comparatively numerous, but are often so obscure as to baffle for a time all efforts to find the origin. Even in the apparently simple matter of differentiating between the pain of periostitis and the purely neuralgic pain of an exposed pulp, much difficulty may occasionally be experienced.

I can, perhaps, in no better way illustrate my meaning than by describing a case directly in point, which came under my charge in the early part of the present year. The patient came to me for the first time with great pain in an upper tooth on the right side. She could not definitely locate the pain, other than in a vague sort of a manner, placing the finger over the first right superior molar, with the remark, "It seems to begin here, and extends along towards the temple." In examining the first molar I found it devitalized. Two extensive cavities had been beautifully filled after the most approved contour method, as also some of the neighboring teeth, and so thoroughly had the work been done that I readily assumed that the roots had likewise been carefully

treated. There were cicatricial marks on the gum over the tooth, indicating that one or more abscesses had on previous occasions been opened with the lancet, but at the time of the examination there was not the least tenderness on percussion, and no loosening or elongation. In response to my questions, the patient informed me that neither heat nor cold aggravated the pain, but that the recumbent position made it much worse. The fact of the tooth being devitalized, the evidences of previous trouble, and the statement of the patient that the recumbent position "made the whole side of the face throb," induced me, in the hurry of the moment, to treat the case as incipient periostitis, and I simply made an external application of aconite,—getting a promise, however, from the patient to come to me the next morning, which she did, reporting that she had endured intense pain during the night. I now felt fully interested in the case, and determined to find out the cause of the pain, which I began to suspect was not the first molar. To this end I asked the following questions, and it will be observed, by the answers I received, how little we can depend upon the patient in many of these cases in helping us to a correct diagnosis. My first question was: "Does the pain come on after eating?" "No; it may come on at any time." "Do sweets cause the pain?" "No." "You told me that the recumbent position provoked the pain." "Yes; I could not lie down at all last night." "Are you sure that cold does not cause the tooth to ache?" "Yes; I have just eaten water-ice without discomfort."

Yielding to an impulse to test for myself the correctness of this statement, I took up a syringe and threw a jet of not very cold water equally upon the first molar and the second bicuspid. Instantly the patient suffered the most acute pain. There, then, was the trouble. The second bicuspid contained a very large gold contour filling. The absence of redness and swelling, loosening and elongation, was accounted for. The pain was confined to the pulp alone. I at once proceeded to remove the gold filling, which I found to be very securely anchored by a number of retaining pits, one of which was through to the pulp. Through this I introduced the end of a fine exploring instrument, and a small amount of pus came out, followed by a slight bleeding of the pulp. suppuration had taken place at the point nearest the irritating influence of the gold filling.

In differentiating between the cause of pain under conditions such as I have described, the recurrence of pain when the recumbent position is assumed is of little or no importance, for pain is always increased by that position, whether the inflammation is confined to the pulp or to the periosteum and contiguous parts, though it may, of course, differ in degree. No rule for the differential diagnosis of causes of pain in the dental organs can be relied on. The only kind of instruction of value to the student in this direction is that which is purely clinical.

I, of course, refer to cases of which we have no previous history or record.

Even in simpler cases where the patient can definitely indicate the affected tooth, and where tenderness to percussion, slight loosening, and elongation dispel all doubt as to the seat of the trouble, diagnostic care is still necessary to the success of the treatment to be pursued, particularly when the previous history of the tooth is unknown. The first question to decide in such a case is: Has the dead pulp been removed, and have the canals been thoroughly filled? Secondly: Which of the roots is affected; I can illustrate my meaning again by citing a case which I was called upon to relieve a few Sundays ago. The tooth, a first superior molar, had been exceedingly painful for forty-eight hours. It was sufficiently raised in its socket to make premature contact with the opposing teeth, and was slightly tilted towards the cheek; which assured me that the trouble was at the usual place—the palatal-root. This tooth contained a large gold filling. I drilled through this towards the affected root, which I found well filled with oxychloride of zinc. After much labor with a very fine drill, I removed this and reached the apical foramen. Pus followed the withdrawal of the drill, and after that quite a free flow of blood, with prompt relief to the patient: although not infrequently the pain is intensified for a short time after the sudden removal of the pressure. The points of diagnostic value in this case were, first, the direction in which the tooth was tilted, indicating the exact seat of the lesion; and, secondly the slight elastic movement of the tooth when pressed, showing that pus had formed, and necessitating the opening of the canal. It is in incipient cases such as this, that, by careful diagnosis, we may save the tooth and prevent many days of suffering to the patient.

We may also meet with complications of a much more puzzling character than those I have described. I recently saw such a case in a mouth which had received no attention since the death of the patient's previous dentist, which occurred ten years ago. There was great pain in the left inferior second or third molar. It required no little care to arrive at the conclusion that the pulp in the wisdom tooth was slightly exposed and fully alive, and that the pulp in the second molar had long been dead; and the violet-colored nodule which was seen partly projecting through an opening from the pulp-chamber was gum-tissue, and not pulp. It may be remarked that the difference in sensibility between the two might have settled the question; but, so far as response to contact with the instrument went, the patient did not seem to be able to distinguish between the two. Now, did I apply arsenic? No. The hypertrophied appearance of one made me uncertain. As to the wisdom tooth, my mind was made up. To it I applied equal parts of oil of cloves and carbolic acid; to the second molar, carbolic acid alone. At the second visit I had no difficulty in determining that the source of pain

had been in the wisdom tooth. It is needless to say that the hasty or careless use of arsenic at the time of the first examination might have resulted in another suit for damages.

Another case occurs to me which even more forcibly illustrates the difficulty of diagnosis. The patient suffered from great pain, swelling, and elongation of the left first inferior molar, and a small circumscribed abscess over the right superior cuspid. Neither of the teeth were decayed, but both were affected by pyorrhea alveolaris. Aware that small circumscribed abscesses often occur during the progress of that disease without the pulp being involved, and that, in other instances, the sinus or pocket which forms along the tooth may by its encroachment cause the death of the pulp and the usual and more diffused abscess, the chief point of diagnostic value was to determine which condition we had to deal with, as the treatment would depend entirely upon the diagnosis. According to the patient's account, the molar had been sensitive to cold for a long time, and had been so tender that it was practically useless. The cuspid had never been painful or tender, either to cold or when used. I inferred that the pulp of the molar had died, and we had the usual form of alveolar abscess to deal with, and that the cuspid was affected merely by one of the abscesses almost characteristic of pyorrhea alveolaris. Applications of ice-cold water confirmed the diagnosis. The treatment in each case was simple enough. It consisted in drilling a capillary opening into the pulp chamber of the molar, to allow the escape of pus, or mephitic gas, while the small abscess in the cuspid, which was located just above the margin of the gum, was opened and treated with a solution of chloride of zinc. In both cases relief was very prompt. It is needless to say that what would have been correct treatment for one would have been highly improper for the other.

Now, it may be urged that the cases I have mentioned here are somewhat unusual. Let us grant at once that such is the fact; but I hold that it is in just such cases that difficulty, if not danger, is to be encountered, and therefore unusual cases demand extraordinary care. I have always believed that in the famous Gardiner case the patient died of pyemia, resulting from an unusually severe alveolar abscess, and if this had been correctly diagnosed and treated in its incipiency the patient's life would have been saved.

Again, four or five years ago a suit for malpractice was instituted against a most worthy and young conscientious member of the profession, whose only fault was in failing to differentiate between periostitis and an exposed pulp. The patient, in the absence of proper treatment, suffered a severe alveolar abscess, necrosis of the process, and the loss of several neighboring teeth, and it was all his friends could do to save the young gentleman from being mulcted in heavy damages.

Alveolar abscess does now and then terminate fatally, and it is very frequently attended with alarming symptoms, and always with much suffering and depression ; yet when recognized and treated in its incipency it is not difficult to manage.—*Dental Cosmos*.

OPERATIVE DENTISTRY: GENERAL PRINCIPLES AND SPECIAL POINTS.

BY A. G. BENNETT, D.D.S., PHILADELPHIA, PA.

[Read before the Pennsylvania State Dental Society, at Wilkesbarre, July 30, 1884.]

Though preparing and filling a carious cavity requires strict conformity to certain mechanical principles, the highest obtainable degree of excellence must be based on definite scientific knowledge of the structure and materials involved in the operation. Here minute anatomy, physiology, pathology, and therapeutics must combine their facts and principles, so that this, the most frequent and important operation in dentistry, may be performed in the clearest light of dental science.

The most important lesson that anatomy teaches in regard to the structure of enamel is, that it divides most readily between the rods or columns, which stand at various but regular angles to the surface of the dentine. The subject of enamel cleavage occupies a small space in dental literature—a paper by Dr. Line being the only one known to me. In my opinion, it has not received the attention its importance demands. It is not possible in all positions to divide the enamel between the rods ; but the walls should be so beveled as to conform as nearly as possible to their directions. It is sufficiently accurate for our purpose to state that the enamel columns lean towards a small and from a large crown cavity, and that, on any other surface of the tooth, the larger the cavity the more the rods diverge ; so that if the cavity wall be beveled almost to the thickness of the enamel and at an angle of from twenty-five to thirty-five degrees, according to the size of the cavity, we shall conform as nearly as it is usually possible to the line of cleavage. All operators have doubtless observed that the softer and more brittle the enamel, the more readily it divides ; and it may be added that the greater is the necessity for conforming to the directions of the rods. I think all close observers will agree that the chief cause for the broken-down conditions of enamel walls around fillings is the neglect of this important point in preparing cavities.

Enamel is best divided with the chisel, which must be sharp and used carefully, or the rods will be crushed or broken. When cleavage is not available, the final cutting, at least, should be done in the smaller cavities with sharp burs, and in the larger cavities with corundum points. The enamel, as well as the dentine, along the cervical wall not being brittle nor accessible to burs, is best removed with an excavator, of which I will speak again. All accessible enamel walls should be polished with emery tape or fine corundum points. Other things being

equal, a polished surface will give the closest possible joint between the filling and tooth-structure. The various sciences which form the basis of operative dentistry teach that about one-fourth of the dentine is organic; that, having circulation and vitality, it is nourished and recuperated in some degree like other vital structures; that it has fibers of living matter which are subject to inflammation; that its lime-salts are removed by certain acids, which generally result from fermentation in the oral cavity; that its carious and softened portions are pervaded by micro-organisms; and that, when the pulp dies, the organic portion of the dentine loses its vitality.

On these facts are based the reasons for topical treatment with anesthetics, escharotics, alkalies, antiseptics, and disinfectants. As regards vital teeth, the softer and more sensitive they are the greater the necessity for treating them with the remedies indicated, and also the greater the benefit in protecting the dentine surface of the cavity from the irritation of metallic fillings with some non-conducting substance. Some writers claim that gutta-percha, being of vegetable origin, and therefore more closely allied to tooth-structure than any substance of mineral origin, is the best lining for all cavities, as well as the best filling for all soft teeth; yet, as some degree of irritation is necessary to the production of secondary dentine, the preparations of zinc, being somewhat irritating as well as antiseptic, promote calcification and recalcification of the dentine more decidedly than gutta-percha, and are, therefore, except in the softest teeth, and when not too near the pulp, the best for temporary fillings and for filling the greater part of all large or deep cavities. The dentine must contain the anchorage for fillings. The general, and I may observe the correct practice is to groove the dentine near the enamel. As a groove interferes somewhat with the nutrition of the tooth, and often produces discoloration around fillings, it should be as shallow as is consistent with retention of the filling. By using one or two pits a little deeper than the groove to start in, the minimum of shallowness can best be attained. Although a groove is a necessary evil, it has, according to some experiments of mine, at least one compensating property,—when properly made and solidly filled, the gold is more or less wedged into it, thereby producing a joint as nearly perfect as can be made, and giving the dentine the best possible protection against external moisture.

We are all well aware of the long-felt want of a material which has, in the highest degree, all the essential qualities for arresting caries and restoring the lost tissues. If we had a cement so tough and hard and adhesive that it would not only replace the carious dentine and adhere to the cavity walls, but serve as a secure anchorage for gold, which would simply replace the enamel, then we could wait awhile for the ideal material. But gold still seems destined to maintain its position among filling materials. According to many, it has some qualities which often compromise the standing of the dental fraternity. These

qualities, however, appear only under improper treatment. Gold becomes harsh and obstinate under too much heating and hammering. In trying to account for its tendency to draw away from the cavity walls it is strange that some one has not struck the idea that between the live-blow mallet and elastic tooth-bone such a tendency might be expected to appear. Yet it seems to me that a light dead-blow mallet gives the best results. All will admit that gold is used in the best possible manner when the greatest degree of cohesiveness is combined with the greatest softness. All that has been said about keeping gold in good condition can be stated in one sentence,—keep the surface clean. When protected from gases and moisture, it will weld without heating, simply because it does not oxidize. Yet so difficult is it to keep the surface clean, that some degree of heat is necessary to obtain the best results. As is well known, ammonia best protects gold from atmospheric contamination.

In regard to pluggers, it is needless to remark that almost any size and shape of cavity and bevel of border can be filled with an ordinary round plugger. The question is, What curve of shaft and form of surface is the best for packing gold into the cavity and around its margin? It has been said that gold will spread only under a smooth convex surface,—a surface that, besides being favorable to slipping, does not give us the full benefit of the cohesive property. But I think it can easily be demonstrated that gold will spread slightly under a convex surface that is serrated transversely; but if serrated in both directions the spreading is more or less problematical. In my opinion, the best surface for all mallet pluggers, especially those of the foot-shape, is not one of extreme convexity or flatness, but slightly convex, of oval shape, and with fine or medium serrations. The oval shape conforms to that of most cavities, and with a slightly convex surface uniform density is more easily and certainly attained; and for general use, especially for filling between the front teeth, a tapering foot-plugger, bent at an angle about forty-five degrees, with serrations projecting toward the end to prevent slipping, and a plugging surface on the point for hand-pressure, is the most useful kind of plugger I have tried.

As those who have tried the experiments can testify, the sides of a gold filling are not always as smooth as the cavity walls against which it rests, showing the filling to be defective just where it should be most perfect; and experiments further prove that it is difficult, if not impossible, to make a joint that will perfectly exclude all moisture. Excavating with the oral fluids entirely shut out shows clearly that all dentine is not as dry as dust; and the moisture around a filling in a soft tooth may be entirely from within, and its presence is not due to the defective manipulation.

This survey of operative dentistry would be incomplete without some allusion to the treatment of approximal surfaces of bicuspid and molars. Nor can we touch on the subject and ignore the systems that have been

practiced for the preservation of these teeth. On these surfaces we have defective enamel which is most exposed to the action of acids and least benefited by the wear of mastication. Because contact permits retention of food and stagnation of oral fluids, and favors decay, the approximal surfaces are separated; and because contact favors decay and the natural shape of the tooth is best, the teeth are first separated and their original outlines restored by filling. Contour is separation made permanent.

It is a truism that teeth are saved by changing the conditions and permanently removing the causes that produced decay. Both systems attempt this, and in some respects both are found wanting. Separation cuts away surface, which contour restores. Separation favors change of position, which contour prevents. Separation exposes the gums to pressure, inflammation, and detachment, while contour gives it entire protection. But contour favors stagnation of the oral fluids,—a condition which greatly favors decay; separation permits their circulation,—a condition which is antagonistic to decay. Contour derives one of its strongest points from separation, while the worst evils of separation are prevented by contour. Separation removes defective enamel and often exposes the dentine, which may or may not be protected by filling; contour, after removing defective enamel and dentine, replaces these tissues by a metallic approximal surface. This metallic surface, if properly formed, is practically indestructible. The weakest part of these fillings, as every dentist knows, is along the cervical wall. When the filling extends above the gum, as it generally should, the cavity is difficult to prepare, fill, and finish. In filling I rely chiefly on the somewhat antiquated matrix, which, among other things, simplifies finishing. One reason why the cervical wall is difficult to prepare is found in the want of a suitable instrument.

I have devised, or, to be more exact, modified an excavator for cutting the cervical wall—an excavator, I may observe, that only needs to be tried to have its merits appear. The angle, size, thickness, and edge of the blade admit of the smoothest and most effective cutting in the smallest possible space, without passing into the cavity or slipping off against the gum. This instrument is a modified spoon excavator, the blade being made thinner and the sides and edge square. By changing the angle of the edge the same instrument can be used to bevel the enamel margin. If this wall is thus prepared and covered with tin, soft gold or amalgam,—the last being the only reliable material for deep cavities,—and the filling is smoothly finished, we have complied as far as it is possible with the conditions of success in this most difficult and vulnerable point of all filling.—*Dental Cosmos*.

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EDITORIAL.

A CAT WITH THE TOOTHACHE.

Miss Edith W., of — S. Twelfth Street, is the happy possessor of a beautiful Maltese cat of six years. Last evening I was surprised and amused by Miss Edith coming into my office with a market basket, laughing and saying "she wanted me to pull a tooth for her cat." On examination I found the left superior second molar in a very bad carious condition. Miss Edith informed me that her poor puss had eaten nothing for two weeks, and, to all appearances, was fast becoming a living skeleton. I decided at once to administer an anæsthetic to my new and greatly alarmed feline patient. I considered chloroform the best and quickest for the operation, and in less than three minutes puss had ceased to scratch. The mouth was easily forced open and the tooth consisting of two roots was quickly removed, much to the delight of Miss Edith. Consciousness was soon restored and with her dear pussy, Edith was soon on her way home.

In fifteen years' practice this is the first case of that kind I have met.

Yours, &c.,

A. H. HENDERSON.

BOOKS AND PAMPHLETS.

BEACHER'S MANUAL AND DENTAL DIRECTORY.

Since noticing this work in the last issue of THE DENTAL PRACTITIONER, our attention has been called to the striking similarity between some of its pages and those of *Caulk's Dental Annual* (first edition).

Upon comparing the two publications, we find that the articles on "State Dental Laws," "Dental Colleges of the United States," "Dental Patents," and "Dental Societies of the United States," are the same in each, with the exception that the last "patent" recorded by Caulk is dated November 13th, 1883; while Beacher has continued his list to December 18th, 1883.

The subject matter in the above mentioned articles is mainly statistical, and might have been obtained by both publishers from the same sources.

It seems a little strange, however, that the introductory matter to each article should be identically the same, and, as Dr. Caulk's publication is the older by several months, it might be in order for the editor of *Beacher's Manual* to explain.

THE QUERIST.

I would be obliged if some one would inform me, through THE DENTAL PRACTITIONER, the best method for lining vulcanite plates with gold, and what number of gold to use?

S. E. J.

Is it considered good practice to insert fillings of dissimilar metals (*e. g.*, gold and tin) in adjoining proximal cavities?

TYRO.

We cannot do better than to refer you to the reply of "C. E. F." to a somewhat similar question in July number of the *Independent Practitioner*. It is as follows:

"Let me refer to the fact that fillings of gold and tin, introduced by our old first-class operators, have stood side by side for years, harmoniously tolerating each other's presence, and with no apparent evidence of mischief from chemical or galvanic conflicts. I have also used Robinson's tin mats for lining the cervical walls of such cavities, and then completing with gold foil. In such cases I feel sure of a more perfect adaptation of the filling to the calcareous walls, and safer and more durable stoppings than when gold is used."

In the September number, "X." writes as follows:

"Will some one please tell me how I am to overcome a trick which an infant under my charge has acquired, of continually sucking its lower lip? The child is a year-and-a-half old, and an invalid for the last nine months; does not take its food except in very small quantities at a time, and then always from a cup. I have suggested a return to bottle-feeding for the beneficial effects of the nipple, but as the child's vitality is small, and feeding essential, this cannot be readily accomplished. I have tried a gag across the mouth, also the placing of obnoxious substances on the lip, etc., but without effect. The lower jaw is now beginning to perceptibly flatten, and the upper to protrude. Will such changes be likely to remain should the habit be overcome?"

We have presented the above query to several prominent members of the profession but without obtaining any practical ideas which "X." has not already tried. The delicate health of the child, and its tender age would seem to preclude the application of any forcible or constraining means to overcome the habit. It has been suggested that he might wisely wait until the child is at least three years of age before resorting to such measures.

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PROSTHETIC DENTISTRY.

BY FRANK R. FABER.

MECHANIC TO THE PROFESSION, PHILA., PA.

Year after year, the public, who are our patients, become more critical in this direction, "and why not?" A familiarity with the fixture, a comparison with others who wear like appliances, conversations pro and con with the professional man on the subject, has brought the patient in America to a height which probably exists in no other country, and which demands higher professional attainments on the part of the dentist. The time is almost gone when the intelligent and well-read patient will take a plate of non-conducting base. Every paper that has a scientific column cries it down, physicians talk against it, and the patients themselves are becoming conscious of its evil effects. Then arises the query, what shall we use and recommend? Vulcanite, aside from the mercurial theory, is non-conducting, and unless extremely well vulcanized becomes foul from absorption. Celluloid, as well as being a non-conductor, is very frail and cannot be successfully repaired. The cast metals have never attained that degree of perfection which would entitle them to a front rank for upper plates. Soldered work on the noble metals, having had a back seat, "excepting in large cities," for a considerable time past, dentists, as a consequence, have become out of practice in its manipulation, and to do successful work of this kind requires that one shall be at it continually. It is with no small degree of apprehension that the dentist who does his own mechanical work, proceeds to put twenty-eight single gum teeth on an upper and lower metal plate, and although the plates are swaged perfectly and fit nicely, these teeth have to be ground tight to the plate, to prevent accumulations of food underneath them; they require joints of the utmost nicety to prevent them showing, they must be so filled against each other that the return shrinkage of the metal during the heat does not crack or spoil them, and then they must be soldered. But why proceed further. Every dentist "excepting the professional mechanic, or the man who has a large metal practice," who has tried it knows as much about

it and probably more than I do. And in addition to the difficulties of construction, it is not a clean fixture. Food will get around the backings, saliva will insinuate itself under the gums, rendering it anything but sweet, unless it be made with the teeth attached by vegetable base. Mineral plate work has proven useless, excepting in the hands of a few experts, its extreme frailty being a great objection to it. Continuous gum with the objections of weight, unless there be good suction, and its liability of breaking if dropped against anything hard, certainly possesses advantages over the others which entitles it to be the favorite at the present day. It is absolutely clean, it is a perfect conductor, it is as strong as any denture of the present day; in fact the percentage of repairs has, as far as I can understand, been less than any other kind of work, and a majority of them were broken while out of the mouth. The construction of it is conducted with the greatest cleanliness of all work, the toil of grinding and occluding is minimum. They can be backed in 10 minutes, the soldering is conducted with a greater degree of certainty, and if a hint which follows later be observed, the teeth will not etch, nor will plaster stick to and take the gloss off them; the body and enamel are easily put on, the only requisite being a little neatness, and the burning, in the furnace I shall mention, becomes an absolute certainty, and if the plate be swaged with care it can be finished almost with a brush wheel. What more is wanted? "Nothing," excepting for the dentist who embarks in this style of work, to make one or two trial cases to give him confidence, and after that he will find it plainer sailing than with any other kind of work. And after some time of trial with it will be rewarded in full by the pleasure and satisfaction it gives his patients, and will be delighted with the healthy condition of the mouths in which it has been placed. After the upper impression is taken and this preferably in plaster, and the model made, place a wax chamber-disc in the apex of it, make a line of wax around the front about $\frac{1}{8}$ of an inch thick where the band is to be turned, being careful not to let it go up too high and impinge on the muscles. This cannot be cut or filed without exposing the body. Therefore, if there are any tender places raise the plate off with a little wax placed on the model before moulding, let the wax for the band extend as far back as the condyle, but not beyond it, if there are any favorite manipulations the artist is in the habit of putting on his models, now is the time. Varnish with shellac and let it dry. When dry it is ready for moulding. Two dies are to be made, if there be any undercuts which prevent a good impression in the sand, they can be filled with a core composed of equal parts of marble dust and plaster. After the mold is obtained, the cores are loosened by tapping the heel of the cast, and carefully put into place, holding them there with some sand wet with water; dry out completely before pouring the zinc, do not throw the hot die into the water, as it badly oxidizes the surface, which oxidization will stain the platinum. Use

metal of 29 gauge and before starting to swage get some very thin muslin and place one layer over the die, and proceed; this is to be renewed as often as it becomes torn. It is some trouble, but the appearance of the plate after burning will amply repay. The final swage on the best die, is to be conducted without the muslin, and with a piece of very thin tissue paper. If nothing is used to protect the platinum from contact with the zinc it must be pickled before reannealing each and every time, otherwise minute particles of zinc will get on the platina, and roughen its surface. Chase the band in tight, also the edges of the chamber, being careful not to cut it. The band now stands at right angles to the plate as it rests on the model. Commence where the band stops on one side, and solder a platina wire of 18 gauge, pass this around the plate, about $\frac{1}{4}$ to $\frac{3}{8}$ of an inch from the heel of the plate. Solder in three or four places, using as small a quantity of pure gold as possible, then swage a piece of platina so that it will extend from the middle of the top of the wire to the heel of the plate proper: this should be swaged down absolutely, and soldered while held in position by stout cleats. It must be remembered in doing this work, that the smallest quantity of pure gold used as solder the better, as an excess of it will cause the body to bubble, or flux it, as it is termed. The plate is now ready for a trial in the mouth; if there be any alteration necessary, now is the time to do it, after this stage it will be too late. After the articulation is made and the teeth selected, grind them into position. The better they fit the plate the less chance they stand of shifting during the fire process. Try once more into the mouth to see if the length is correct and the teeth straight, then paint the surface of the teeth with thick shellac varnish; this burns out during the soldering and leaves a space between the teeth and investment, preventing contact and thereby etching. Invest in long fibre or feather asbestos, two parts, and plaster, one part, having previously placed over and between the teeth a coat of plaster $\frac{1}{4}$ of an inch thick, this prevents them from moving. After the investment has dried thoroughly, remove the wax, and with a pair of pliers bend the long platina pins to a right angle with the tooth, cut three patterns of platina for backing, two extending from the molars to the canine, and the front one from the first bicuspid on one side to its mate on the other. This will leave the edges overlapping and gives additional strength. If the backing strips are punched full of holes with a plate punch, it will facilitate the putting on of the first body. Bend the pins down over the backing strips, put on as little pure gold as possible to catch all points, and proceed to solder. This can be done by the blow-pipe or in the furnace; I myself prefer the blowpipe. When cool break off the investment, and pickle in acid and water: the teeth will almost always be found as clean as when they were invested; if, however, any plaster adheres scrape it off and rub down the mark with a piece of Hindoostan stone, try upon the die. If altered any, the plate can

be burnished into shape, and the teeth moved at will. It is now ready for the body; this is to be mixed to a degree of thinness which best suits the artist. Most dentists use it about the consistency of thick cream. Wash the case with soap and water with a little powdered pumice stone, dry off all moisture and place on some body with a suitable spatula, then tap the heel of the plate with an instrument, preferably one with a wooden handle. This will make the moisture rise to the surface, dry it off with an old napkin, and put on some more. The process of putting on, tapping and drying is continued until the whole plate and rim is covered to about the thickness of 24 plate.

The Tees Lilliput furnace is the one in most popular favor to-day, and the one I heartily recommend; full directions for making the fire etc., and in fact for everything about the work accompanies each one sold. It is now ready for the first burning, dip a sharp lance or bistory into water and divide the body from between the centrals to the heel of the plate, then divide from each tooth to the center division, ditto on the rim, from between each tooth to the band. This body is to be burned until a glaze appears on the surface; after it becomes cool there will be found deep fissures where the cuts were made, as each section shrinks upon itself. After bending the band to the desired position, these are to be filled and tapped as before to get out all moisture. Now is the time to fashion the rugae and fistoons according to the taste and judgment of the operator; this body is to be burned until it assumes a rarefied appearance but not a glaze; if this burning does not fill the fissure completely, a third body will have to be resorted to. When cool the enamel is put on thick or thin according to the shade required. The thickness of 24 plate produces a medium color. When the time of burning has expired quickly remove the slide to an iron shovel and view it under a gas jet; if it looks smooth, with a total absence of roughness it is finished, place it for three or four hours in a previously heated muffle, when cool rub over the enamel with a clean cloth some pure olive oil, this will remove the enamel checks. If, however, the body be cracked, through too rapid cooling, it will require another burning. Champfer off the back edge or heel of the plate and rub it smooth with a scotch stone, and burnish. Apply the burnisher to the rim, and if the cloth has been used to cover the zinc it can be finished with a polishing wheel, preceded by a stiff one. The points to be remembered are these, that the shrinkage all takes place in the first body, therefore, it is an excellent idea after the case becomes cool to place it upon the die, and with a piece of flat wood laid across the bi-cuspids of both sides, and struck by a light hammer, force it back into position if it has warped any. If any pieces of the body fly off, they can be replaced in the second burning; also that bubbling is caused by too much gold used in soldering, and by not jarring the body material down firm enough.

This is not put forward as something that will be always successful, but the dentist who will have enough patience to learn it, accompanied by a little actual practice with it, will find that at the present day, among all the different methods of construction and materials we possess, this is justly entitled to be the favorite, and that the failures will be as few as with any other style of work.

DENTAL EXAMINATIONS.

BY L. ASHLEY FAUGHT, D. D. S.

Thorough, systematic and conscientious examinations of each mouth placed under the care of a dentist are in the strict line of his duty.

The enunciation of this truth, at this period of extended dental education and advanced civilization, will be received by the members of the profession with nodded approval, accompanied by the remark "that it is nothing new;" and by the community at large who constitute our patients with full assent, but in tone expressive that it is their reasonable expectation. Such is apparently the position dental examinations hold in the minds of both patients and dentists, yet nevertheless, the large majority of each class reap not the full harvest of tooth salvation which such practice should produce, for it is the constant experience of dentists that too often their proudest efforts fail ignobly, and often sooner than they had reason to expect. This fact has its complement in the personal experience of many patients, who, after having had their mouths examined, the indicated line of work accomplished, and a large bill settled, find in a surprisingly short period of time, an equally large amount of work to be done, and that they have again to pass through the whole routine.

These results demand reasonable explanation, but what can be offered in the face of the fact that "thorough, systematic, and conscientious examinations of each mouth placed under the care of a dentist" should produce a better order of things, other than a confession that our examinations are not thorough, systematic, and conscientious, nor repeated sufficiently often to protect our own work. This condition can only be changed by a determined effort on the part of every dentist, that the patients under his care shall have a definite idea of the responsibility of dental examinations, and comprehend that they are an essential requisite to skillful and intelligent service; for we are individually responsible for the erroneous and foolish views which our clientèle entertain on the subject.

Patients need to be taught.—That the examination of the mouth is the first item in a line of work, and that it cannot be done cursorily or hastily, but requires an appointment, as for any other operation, for it will consume time in its accomplishment, and will need the concentrated and uninterrupted attention of the operator.

That this examination of the teeth by a dentist is not accomplished by his merely looking into the mouth to determine if the teeth have cavities needing filling, or if any should be extracted, or if any artificial denture is required ; but that besides these necessary points and as adjunct to them, the teeth should be thoroughly cleansed, the tartar removed, and the extent of decay in the cavities noted ; and still further, that it is necessary to notice the structure of the teeth, their location, occlusion, and the condition of the gums and saliva. Very frequently indeed will it be necessary to insert wedges between certain teeth, and continue the examination over one or more future sittings to absolutely determine their condition. That, as such an examination is a most valuable service, and worthy of being acknowledged by a financial return proportionate to the time and skill consumed in its rendering, therefore, for it, a fee will be charged.

That it is an unfortunate error to foster the supposition that teeth once filled will last forever, for they must, in the nature of things, after being filled, be subject in a large measure to the same forces which produced the original cavities, and which may tend to render the best service of the dentist but temporary in character. Appreciation of this point ought to indicate the necessity of returning at regular appointed periods to the dentist after the teeth are once put in good condition, in order to receive the essential after-treatment and professional supervision necessary to insure the best results. This needs to be emphasized by the dentist suggesting to the patient that, as time passes more rapidly than most patients are apt to suppose, and in the absence of a definite appointment, the habit of procrastination and deferment will grow, it will be best attended to by allowing the name to be carried continuously on the appointment book (which is no trouble whatever) and by expecting him after what he deems a proper interval, to send an appointment for another examination. This method places the responsibility of each patient's teeth, so far as the matter of examinations is concerned, where it belongs,—with the dentist. If on these successive examinations there is work to do, the patient certainly will be glad to know it, for in early detection of decay is immunity from pain, and fillings in small cavities are of the greatest service ; and if, on the other hand, only perfection is the result, he has cause for congratulation, and should consider the small fees given for the examinations in the light of insurance money well paid to protect a large original outlay.

That if they should be so unfortunate as to pass through a serious illness between any of these examinations, they should not wait for the next expected appointment, but present themselves at once upon recovery for the examination, as a matter of safeguard.

That it is of the greatest importance that children from four years and upward, be especially thus placed entirely in the hands of the dentist to secure the first set of teeth against too early decay, and to afford

opportunity for the treatment of irregularity and preservation of the second set.

That the adoption and faithful execution of these considerations will make the results of dental service more creditable to the dentist and far more satisfactory to the patient.

MEDICO-CHIRURGICAL COLLEGE.

CLINIC ON ORAL SURGERY,

BY PROF. GARRETSON.

REPORTED BY ROBERT S. IVY.

CASE I.—Nasal Catarrh. This patient, a child three years old, had been troubled with persistent discharge from the anterior nares since birth, which condition implied excessive secretion of mucous. From history it was learned that the family had a tendency to scrofula, which was satisfactory evidence of the cause of the present affection in the child; another indication found, and one which is diagnostic of scrofula, was the enlargement of the superficial glands of the neck, showing susceptibility of the lymphatic system. Such condition as this in a young child receives best treatment in exercise and tonics. As an alterative, iodide of potassium, one grain three times daily, is good; this combined with injections of nitrate of silver was prescribed.

CASE II.—Laryngeal Catarrh. Examination of the patient showed sub-mucoid inflammation of the larynx, which by relation of continuity, had involved the pharynx. The treatment prescribed was simple, instruction being given to place a piece of fly blister, the size of half a dollar in the region of the thyroid gland, and allow it to remain from eight to ten hours; on its removal apply a bread and milk poultice in the same position, with a view of drawing serum to the part. The bleb resulting is to be pricked and the water allowed to drain off. The patient was also prescribed as a gargle, the officinal tincture of myrrh and capsicum diluted. The Professor remarked, that one of the happiest temporary remedies for this condition is the internal use of nitric acid, five drops diluted. It will relieve a public speaker for a few hours until such time as he can receive other and more substantial treatment.

CASE III.—Odontocoele. An odontocoele may present itself in any part of the maxillar bones, and what is of much consequence to be remembered, may have, as the lesion of departure, a supernumerary tooth. The absence of a tooth or teeth from the arch through non-emergence, conjoined with the presence of a non-vascular tumor, affords inference of the odontocoele. In the event of supernumerary teeth or of doubt as to absence of teeth through non-emergence, the use of the exploring needle, striking the slippery enamel will always explain the ordinary condition.

The patient before the class, a lady 25 years of age, had a tumor extending from the canine fossa into the incisive fossa of the left superior maxillary bone. The tumor was soft, feeling like a sac containing fluid, which fluid could be passed backwards and forwards from the labial to the palatal surface. The lateral incisor and cuspis, which should have been immediately beneath were absent from the arch. The central incisor and first and second bi-cuspidati were in place, but very sore to the touch, the second bi-cuspis being slightly decayed and the central elongated.

After the foregoing description and explanation, the class was asked to diagnose the case, the majority of the students pronouncing it as one of probable odontocèle, the question having previously been asked if either or both the absent teeth had been abstracted, the lady replying that one of them had, but she was uncertain which. The Professor, sustaining the diagnosis, cut into the tumor, which discharged a yellowish fluid of the consistency of gelatine, then with an ordinary excavator the position of one of the missing teeth was located. Grasping it with a pair of forceps it was extracted and proved to be a left lateral incisor. Failing after thorough examination to discover the cuspis tooth, the cavity was thoroughly syringed out with dilute phenolsodique. The patient returned the following week, by which time the soreness of the incisor and bi-cuspidati had in a great measure disappeared, and the parts were in a healthy granulating condition. A subsequent visit found the *dis* removed and the whole jaw in a state of *ease*. The only treatment consisted in the use of the phenolsodique.

CASE IV.—Odontocèle, (No. 2.) The patient, a man about forty years of age presented with a discharging abscess on the right side of the face, over the ramus of the jaws and below the line of Steno's duct. The surrounding parts were somewhat swollen and it might have been inferred that the duct of the parotid gland was involved. By passing a probe through the fistula a hard body was discovered, which suggested possible salivary calculus, through such concretions are more frequent in connection with the sublingual glands. On more careful manipulation with an excavator the substance had the feeling and sound of enamel structure. Examination of the mouth showed the absence of the right inferior wisdom tooth, and the other teeth in position. Notwithstanding the fact that the patient declared that the missing organ had been extracted three years previously, the Professor, after enlarging the fistula and thoroughly locating the position of the substance, passed in a pair of small bone forceps and drew from the abscess a body which proved to be the right lower wisdom tooth. After ordinary treatment the patient speedily recovered.

CASE V.—Exsection of the inferior dental nerve was performed with the intention of relieving, if possible, a case of neuralgia. The operation consisted in first discovering the mental foramen, at which

point the nerve makes its exit on to the face dividing up into its mental branches. The foramen is not always constant, a good rule though to define its position is to take a line downward from the supra orbital foramen, which is found at the junction of the inner with the middle third of the upper margin of the orbit so as to cross the interspace between the lower bicuspid teeth. This will hit both the infra orbital and mental foramina. The position having been defined, the soft parts were drawn up so as to avoid any after-scar being visible, and an incision made through the integuments, in doing which the facial artery was cut, the hemorrhage caused being controlled by a ligature. Proceeding, the bone was exposed and the wound held apart by retractors, the periosteum was removed. The foramen instead of being normal, was seen to be a mere slit-like opening in the bone, the upper side overlapping and impinging on the nerve in such a manner as to cause its constriction and form a neuroma. The mental offshoots were caught with a tenaculum, the dental canal was entered and its track followed with a bur revolved by the surgical engine, care being taken to avoid injury to the artery and vein, and excision of the nerve was made about one inch and a quarter from the foramen. A most important feature in the use of the bur and surgical engine is the ability of the operator to leave the bone in a perfectly smooth condition, without the ragged edges and roughened surface which is unavoidable when the chisel and other instrumentation is used; such conditions cause more or less irritation of the parts and interfere with the recovery of the patient. In the case under notice, the bone was left like a piece of polished ivory, after-results showing the advantage of this manner of operating. To syringe the parts with very dilute phenolsodique as an antiseptic, and to clear away all debris was the next step, after which four stitches were inserted drawing the parts in as close apposition as possible. Compresses, held in position by an ordinary Barton's bandage, were placed on either side of the wound preventing, by pressure, any pus burrowing and injuring the surrounding tissues, thus producing unnecessary complications. The patient was shown to the class the following week, with the wound thoroughly healed, and the neuralgia cured. After all operations of this kind immediate union seems, in this clinic, to be the rule rather than the exception.

CASE VI.—The patient, a girl about eighteen years of age, appeared with a fistulous opening on the side of the lower jaw. An external examination showed peculiar appearance as though pus had penetrated between the epidermis and skin, the parts being of a purplish-red color. The patient had been suffering with the condition since last April, and with a view of freeing herself of it, had the roots of the second lower molar tooth extracted which were found to be exostosed. The diagnosis was by exclusion; ability to diagnose in this manner is "to find one's self able to say what a thing is by being certain what it is not." Pre-

suming the form and appearance as shown in this case to be significant of six diseases, and proving it is not five of them, it must necessarily be the sixth. The first question to ask was, how could an exotozed tooth produce an abscess? It would cause severe neuralgic pain, but seldom of such a nature as to result in the formation of an abscess. Thorough exploration with a probe passed through the fistula into the floor of the mouth discovered no denuded bone, but a mass of cellular tissue, connecting the lesion with the gum, and suggesting parulis. If the abscess were dental, caused by the exostosed tooth roots, its removal should have followed their extraction; the thought then suggests itself, is it not possible that the dental form of abscess may have been converted by continuity into an alveolo dental one, the inflammation having passed from the tooth into the bone? In such case, bone divested of its periosteum would be felt and pus appear, but as stated, the probe came in contact with nothing but cellular tissue, showing conclusively the condition was not associated with diseased bone. The possibility of its being an abscess of the integuments was also rejected, as that would of necessity be caused by the presence of some foreign body, acting as an irritant to the parts, and the formation of pus. Excluding exostosis, parulis, dental and alveolo-dental abscess, or an abscess of the integuments from the diagnosis, it was recognized that, not being able to find the cause of the trouble, scientific treatment was impossible. Experience, however, classified the case as a form of tumor on the face rarely met with, being a fungiferous vegetation having existence in the presence of a parasite, and known as *sycosis parasitica*. Treatment for the condition must be persistent, as the first tumor no sooner lessens than a second arises, having the same history, and so one after another come and go indefinitely. The patient was ordered to apply several times daily a solution of bi-chloride of mercury, two grains to the ounce of water, this treatment having invariably met with success.

CASE VII.—Caries of the left superior maxilla. Caries in this region once commenced, unless attacked with sufficient vigor frequently involves the whole bone. The portion of bone diseased was confined to the alveoli between the central incisor and second bi-cuspid, the intervening teeth having been extracted. The old manner of operating for this condition was with mallet, chisel and saw, occupying considerable time and causing much inconvenience. The use of the surgical engine has done away with such barbarous instrumentation, and the operation can now be performed without the use of an anesthetic. First dissecting away the soft parts, the whole of the diseased portion of the bone was burred out, the operation occupying only a few minutes. The rapidity and superiority of this mode of working is to be seen to be appreciated. After treatment consisted in syringing the parts with dilute phenolsodique.

LOOSE INFERIOR INCISORS AND THEIR TREATMENT.

BY J. HARDMAN, D. D. S., MUSCATINE, IOWA.

Read before the Iowa State Dental Society, May, 1884.

Every dentist of a few years' practice can appreciate the importance of this subject.

Mr. A. or Madam B. has appealed to us for relief, where the attempt to masticate has become nearly intolerable. And with endurance exhausted, and a conviction that but an only alternative remains, requests the immediate removal of the unbearable tooth. In such cases one, or perhaps more of the lower incisors are quite loose, sore, and more or less elevated from the socket; and we observe, too, it can be oscilated to and fro in an arc, often exceeding one-fourth of an inch. It is at once apparent what a great source of agonizing torture the act of mastication must be. The uncertainty of the tooth's position; the liability to be violently occluded upon by the upper antagonist; the super-induced sensitiveness of adjoining tissue—all go to make the function of mastication a dread, and an almost entire impossibility.

And we need not be reminded how generally in these cases the practitioner proceeds to remove the tooth or teeth and thus secure an abatement of the immediate suffering. Or, if an attempt at retaining and treating is concluded upon, it has been found to afford at best but temporary relief. The tartar is removed, the gums therapeutically treated and the crown slightly shortened and the patient told to prepare for the worst in the near future.

There are, probably, no teeth in the human mouth the loss of which is so severely felt as the inferior front teeth; and no others, as a rule, so exempt from caries; and, although they generally are the last to yield in the struggle to serve their possessor, yet how frequently they are compelled to quit the field while yet healthy and complete in form and structural strength, but merely wanting in support!

And where can we point and say, "this is the way to meet the case, and prolong the service of these valuable but disabled organs." We ask our brother dentist here and there: "What do you do where the inferior incisors become loose, elongate and greatly interfere with the function of mastication?" Answer: "I treat for a while palliatively, and soon have to remove them."

That salivary calculus, pyorrhea, undue elevation of position, etc., attending these cases may be surgically and therapeutically treated there is no doubt; but that in the large majority of the cases presenting, which are likewise generally in subjects beyond the acme of life, these means fail to render anything that can be regarded as of permanent good, wherever a degree of looseness is already established is also true. Mechanical devices for support, placed about the neck of these loose teeth, binding them to their adjoining neighbors, has to some extent

been practiced and been of some benefit; but the instability has been but partially checked and the trouble allowed to go on.

It is obvious that so long as use produces undue pressure upon the alveolar border, absorption of the osseous supports will result. Hence, the remedy that offers the most good is that which will secure the greatest amount of quietude and steady support under all attending conditions. Any support placed about the tooth and at the time leaving the extremities free, will, when the masticatory force comes upon the end, act upon the principle of the lever and fulcrum, and must irritate and excite an increase of the wasting process and thus keep up the mischief. We then conclude this support must be furnished by the neighboring teeth under a mutual compact; and that to be efficient, it must be placed at the upper end of the crown. And as the position of the teeth forms an arc of a circle, this can be most effectually done even though some are quite loose; and one or more may even have become entirely detached.

The plan I wish to present for your consideration has been most effectually tested, and while I think it an original one, some of you may have used the same means; yet, the common interest cannot be lessened whether it be new or not.

For illustration we will paraphrase a case with features to all of us quite familiar. Say probable age from 45 to 75, with most of the inferior teeth remaining, but all show more or less wearing down. The alveoli are greatly reduced about the incisors, and the two centrals are quite loose and are elevated at least one line above the rest.

Procedure:

1. Remove the deposits and get the teeth clean.
2. With a well waxed piece of linen twine tie the eight front teeth together. Thus, begin by one or two turns around the neck of the left first bicuspid and tie a knot. Next tie one lap over the left cuspid, bring both threads between it and the adjoining incisor and continue in the same way with one lap and a knot between each tooth, drawing the thread tightly upon each until the right bicuspid is reached, and then well knotting around the neck of this or some other appropriate tooth. Then return with the same process of tying back to the point of beginning. In many cases the tying can deviate from this, as the peculiarities may indicate. Other devices may take the place of this; and in some conditions no such support may be needed.
3. Cut the ends of the incisors to a level so as to relate in antagonism with the upper teeth.
4. With a small circular saw in engine, cut a slot or groove in the ends of the loose incisors extending latterly in one continuous line, making a fissure about one line deep, and opposite each extremity of this groove make retaining orifices in the cuspids; or, if they are loose, the orifices may be placed in the bicuspid. At this point of the opera-

tion an impression may be taken with wax or modeling composition and the patient released for a period.

5. Adjust a metal bar, or yoke (gold, silver or platinum), so formed that it will lie snugly in the fissure, before made, and with the ends resting in the retaining orifices.

6. Proceed to firmly anchor the yoke-bar into the fissures of the teeth; and its ends into the holes in the cuspids. To do this, gold, amalgam or cements may be used, each having qualities best suited to meet certain conditions and preferences, and hence also the provisions as undercuts, approaches, etc., should correspond to favor the plan of anchorage adopted. If gold is chosen then the bar should be gold. If amalgam then gold or silver for the bar; and if oxy-phosphate of zinc, gold or platinum; and the approaches should be in harmony with the plan settled upon.

In this description I have been general. You will readily supply the points that might be mentioned in detail, such as are indispensably needed, as retaining surfaces, under cuts in the fissures; on the bar; on its ends, or in the end orifices; and also the modes of forming the yoke-bar, etc.

Now if such a case as this is well done, the relief to the patient is so marked that early expressions of gratitude come spontaneously, and the mutual enjoyment of satisfaction and confidence in both patient and operator is full and cordial.

But deviations, complicating the case often attend, such as:

1. Irregularity in position of the teeth; some being within or outside of the line of the arch.
2. The points of the crowns of the teeth may be thin and forbid fissuring.
3. One or more teeth may already be entirely detached; or so near it that its removal is necessary.

We will briefly consider these embarrassing conditions somewhat seriatim:

1. Slight irregularity in loose teeth may often be corrected by tying them in or out, as required, and in case of angular position, but otherwise in line, the fissure may cross more or less diagonally. In cases where one tooth or more is in or out of line too far, the yoke bar may pass upon the lingual side of the tooth's end, and, as the case may demand, the fissure be made across the cutting edge of the tooth instead of extending in a line with the edge, and a branch bar to occupy it may be soldered to the main bar at right angles.

2. Where the points are too thin and delicate to fissure in a line with the cutting edge, the bar may be adjusted to the lingual surfaces, and the fissure of each made across the cutting edge, while a branch attached to the main bar drops snugly into each and is there anchored. Or, small holes, one through each tooth point, may be drilled to meet

the bar, to which small pins can be soldered that will rest in these holes and there be secured.

3. Where a tooth is already detached, it must, previous to the tying of the row be secured in place at the root end, or as near thereto as is possible or proper. This may be done by making a hole or slot directly through the root of the fugitive tooth in a line with the arch; also upon each tooth contiguous to the vacant space, and at relative points to the hole; retaining orifices or slots are cut (but with due care where vital pulps are in danger). Thus, then, a suitably formed pin or bar is passed through the root of the fugitive tooth, so that its ends may enter the slots in the adjoining teeth, and be firmly anchored. Where a tooth is lost, a plain plate artificial tooth may be backed with lateral projections at the base to anchor into the roots of the neighboring teeth and a fissure formed at the cutting edge by grinding a portion of the upper back face of the tooth away for one wall and extending the backing well up over this ground surface for the other.

An almost indispensable implement in performing this kind of work is a nicely running small circular saw, for forming the fissures or slots, and also to aid in cutting off the ends of the elevated teeth, etc. They should vary in size from one-eighth to one-third of an inch in diameter. These are also useful for cutting out fissures in crown cavities, trimming edges, reducing stumps for crown work, cutting out old fillings, etc. They are probably not furnished in proper sizes by dealers at present. They are not, however difficult to make from the handles of old separating files. Draw the temper by heating, then cool gradually. Drill a hole (which may be squared with the point of a small file) and cut as circular with snips and file as you can. Make a shaft out of iron wire to fit your engine (these iron wire shafts are useful in many ways), and dress the end to fit the hole in the disc, into which secure it by riveting. Now put it into the engine and true up by running it against a file or corundum slab. Next, place it in the vice and with a fine angle-edged file make the teeth. Or, with a properly formed cold-chisel cut the teeth, by even taps of a small hammer, shifting the wheel in the vice as required, and continue the cutting until completed. Then put into the engine once more, and true the teeth, etc., where needed; then temper by heating upon charcoal, and when quite red, drop into water. Several of different sizes can soon be made in this way, and may be resharpened by drawing the temper and using the file, when the temper may again be restored as at first.—*Archives of Dentistry*.

EXPERIMENTS made in Parisian hospitals show that sulphide of carbon is a valuable agent in cholera. It has restored to consciousness, in thirty seconds, hysterical patients who, previous to its administration, were insensible even to the pricking of needles.

**MICROCOCCI IN RELATION TO WOUNDS, ABSCESSES,
AND SEPTIC PROCESSES.**

MR. W. WATSON CHEYNE, in his report on this subject to the Scientific Grants Committee of the British Medical Association, thus sums up the chief points of interest in his paper :

1. There are various kinds of micrococci found in wounds treated aseptically, differing markedly from each other in their effects on animals. They agree in growing best at the temperature of the body, and in causing acidity and sweaty smell in the fluids in which they grow. The experiments show that cultivations may be carried on in fluids with accuracy, provided the precautions mentioned be observed.

2. The micrococci tested in these experiments grew best in materials exposed to oxygen gas. They grow only with difficulty in the absence of oxygen. Eggs were not good pabulum.

3. Their effect on animals was not altered by growth with or without oxygen.

4. The effects of these micrococci on rabbits and man were not similar, some of the most virulent forms for rabbits causing no deleterious effects in wounds in man.

5. The kidney is apparently an important excreting organ for organisms.

6. Organisms not capable of growing in the blood may yet cause serious effects by growing in the excretory canals. This may explain some cases of pyelitis.

7. Where an organism is not markedly pathogenic, it may be necessary to introduce a large quantity before morbid changes are set up.

8. Suppuration is not always due to micrococci ; it may be caused by chemical irritants, such as croton oil.

9. Micrococci are always present in acute abscesses, and are probably the cause of them.

10. In some cases the micrococci are the primary cause of the inflammation and suppuration, as in pyæmic abscesses ; generally, however, they begin to act after inflammation has been previously induced.

11. This inflammation may be caused by an injury, by the absorption of chemically irritating substances from wounds, by cold, etc.

12. There are several different kinds of micrococci associated with suppuration.

13. Micrococci cause suppuration by the production of a chemically irritating substance, which if applied to the tissues in a concentrated form, causes necrosis of the tissue, but if more dilute, causes inflammation and suppuration.

14. The conditions in wounds and abscesses are not the same, inasmuch as in the former there is opportunity for mechanical and chemical irritants to work.

15. There is no reason for denying the existence of "antiseptic sup-puration."

16. Tension may also cause suppuration, but it is perhaps most frequently aided by the growth of micrococci. These organisms need not be of a very virulent kind. It is also probable that the products of inflammation are themselves irritating and capable of exciting or keeping up inflammation.

17. The micro-organisms of septicæmia, of pyæmia, and erysipelas are different from one another and from those of abscesses. In erysipelas the micrococci grow in the lymphatic spaces. In pyæmia, they grow in the blood to form colonies and emboli. In septicæmia they may only grow locally, the symptoms being due to the absorption of their ptomaines; or if they grow in the blood they do not form colonies and emboli. Septicæmia may also be due to other organisms besides micrococci.

18. There are no facts to support the view that it is the same micro-coccus which, under different conditions, causes the various diseases. The experiments of conversion of innocent into malignant forms, and *vice versa*, are unreliable.—*British Med. Jour.*

THE BROMIDES IN DENTISTRY.

BY R. M. SANGER, D. D. S.

Read before the New Jersey State Dental Society at its Fourteenth Annual Meeting, Asbury Park, July, 1884.

Mr. President and Gentlemen :

The subject which I have chosen for my paper is not exclusively dental, and my excuse for offering it must be that since it is a large part of the dentist's mission to relieve human suffering, everything which aids in any way that end, or comes in as an adjuvant in accomplishing that purpose, should be welcome to the dentist and be found among his varied resources.

The peculiar effects of the Bromides, as seen in medical practice, suggest several therapeutic uses in dentistry, and on these and the results of their use in my own practice I base my claim to bring them before you. Though the effects of the Bromides are doubtless well known to you all, it will serve my purpose and make my subject clearer to briefly review this action and bring out a few of the salient points. While they differ slightly in their action and effect, I take the Bromide of Potassium as fairly representative of the group, and the one most commonly used.

The minor points of solubility, taste, etc., I will pass over, simply remarking that in consequence of its ready solubility in water it is easily administered, while the taste is simply saline, and not highly disagreeable to any one.

It is more of its physiological effect that I wish to speak, and just here I will remark that we gain no aid in studying the effect of this medicine from its administration to the lower animals, as the results of a medicinal dose are very misleading, being to them a poison, while to man it is much milder, not a single case of acute poisoning having ever occurred. It is true that in large doses, long continued, certain effects are produced which might be classed as poisonous, but with these we have nothing to do, as my object is to show the use which can be made of a single dose. The immediate effects, physiologically considered, are :

- 1st. Depression of the heart's action.
- 2d. Diminished respiration.
- 3d. Lowering of the temperature of the body.

Bartholow's observations are that "two drams of Bromide of Potassium will lower the temperature in a healthy adult from one-fifth to one-half a degree, the respiration from two to five, and the pulse from ten to twenty beats per minute. The sensibility to pain, but especially the sensibility to tactile impressions, is lowered by the Bromides, at all accessible points of the mucous membrane and the skin. The diminution of the sensibility of the mucous membrane is due in part to a local action of the salt as it is being eliminated. They also possess the power to destroy or impair the irritability of the motor and sensory nerves, and the contractility of the muscle."

Now I can state categorically the therapeutic uses which may be made of Bromide of Potassium in dentistry, and we can all see and understand the *modus operandi*.

- 1st. We can use the Bromide of Potassium to quiet cerebral excitement.
- 2d. We can use it to diminish the sensibility to tactile impressions in the mouth.
- 3d. We can administer it freely without any fear of unpleasant results.

Our brethren in the medical profession are demonstrating the value of the Bromides in these respects every day, and that not in serious maladies alone, but in the more trivial yet none the less disagreeable, just such as we meet every day in our own practice.

The physician is called in to see a patient suffering from severe mental excitement, caused, perhaps, by nothing more than a "scene" in the family. There is no disease, but simply that condition of cerebral excitement and reflex irritability vulgarly called "hysterics." Our clear-headed physician perceives the condition, administers a full dose of Bromide of Potassium, and soon the peculiar effects are seen. The brake is applied to undue excitement and irritability, and a condition of peace and quiet follows.

The novice in public speaking having the ordeal of an address or lecture before him, knows by certain preliminary signs, and perhaps by past experience, that when he shall stand before his audience in a state of high mental excitement the follicles of the mouth and pharynx will close and leave the tongue cleaving to the roof of the mouth, the throat suggestive of a very dry spell of weather, the heart beating an alarm, a "globus hystericus" in the throat (the lump which can be swallowed but not kept down), the air passages so occluded in consequence of the nervous excitement that 100 breaths a minute seem a necessity, the hands and feet unable to find a resting place, and, more than all, the very opening sentence of a carefully prepared and well memorized address completely gone from memory. Now thus forewarned he goes to a physician and states the case. The one who is not familiar with the virtue of the Bromides, may laugh and joke, but the one who does know orders thirty grains of the Bromide of Potassium, to be taken one-half hour before the time of need. And with this brake on nervous excitement the speaker comes up to the ordeal smiling, fresh and cool as a veteran.

The *Laryngoscopist* finds a patient who, the moment a mirror is placed in his throat, so far forgets himself as to try to swallow it. The examination of the larynx cannot be made. What is to be done? The trouble is simply reflex. The patient has the best intentions, but is helpless. Scolding is of no use. The physician simply orders a gargle of Potassium Bromide to be used frequently, and directs the patient to come again next day. Then there is no trouble. The brake has been applied; the patient cannot be made to swallow the mirror, and the examination is completed with perfect ease.

And now I come to the practical part of my subject, to which these remarks have been leading. Certainly the results which the physician obtains from Bromide of Potassium in his practice, in these trivial matters, as some may be inclined to call them, are highly suggestive to us as dentists, and may be applied in somewhat similar cases in our own practice, cases which, if not serious, are very trying to both patient and operator. I refer to all that class of troubles we meet characterized by cerebral excitement, heightened reflex irritability, or marked by hyper-sensitiveness to tactile impressions.

It is scarcely necessary for me to say that a perfect fitting denture cannot be made without a perfect impression, and yet how often we try to obtain a satisfactory result with one we know to be imperfect, because it seems impossible to get a better, since each attempt produces a paroxysm of coughing and choking on the part of the patient that compels us to withdraw the cup sooner than we wish. If this condition were due to foreign matter in the pharynx or larynx, actually impeding respiration, we should have no remedy; but since it is so often produced

when that condition does not exist, it can be classed only in the same category of reflex disturbances that the *Laryngoscopist* meets, and this being the case thirty grains of Bromide of Potassium given immediately on the arrival of the patient will, one-half hour later, obviate this difficulty and render the patient as docile in our hands as in the hands of our medical friend.

Again ; a patient presents herself desiring to have gas administered, but so nervous that she can scarcely sit still while you are making the examination, and sometimes with a doleful tale of how she almost "cleaned out" another dentist's office when he attempted to administer the anaesthetic, and he was compelled to perform the operation while she was only partially unconscious, thereby causing more mental suffering than if the gas had been dispensed with. Now the trouble is increased by the memory of that occasion. But it all can be remedied and the way made clear by the administration of from thirty to forty-five grains of Bromide of Potassium.

Again ; how frequently we have patients who tell us that they dread the after-effects of a sitting far more than the actual pain of the operation, as they invariably suffer from nervous prostration and headache for hours. Administer thirty grains of Bromide of Potassium about one-half hour before you begin, and the patient will leave your chair after a sitting of an hour or more, surprised to find himself as well as when the operation commenced. Then we can take a hint from the fact that Bromide of Potassium will lessen the sensibility to tactile impressions, and give a dose freely when we have a very sensitive tooth to deal with. The result I have found to be perfectly in accordance with what we should expect.

EDITORIAL.

RENEW YOUR SUBSCRIPTION.

IT IS ONLY FIFTY CENTS.

Before commencing another volume, we would like to know how many of our old subscribers appreciate THE DENTAL PRACTITIONER well enough to continue with us for another year. We therefore ask that you send in your subscriptions *early*, and we hope to find not only all our old friends with us again, but a host of new ones.

We are not ashamed of our efforts in the past, but our constant endeavor shall be to do better in the future. Encourage us by responding to this invitation *at once*. Do not lay this book aside with the thought that you will attend to it after a while—*do it now*.

We feel certain it is not the *price* that would prevent any man sending in his name. Is it the momentary trouble of filling out the blank

and mailing it? If so, the sooner you get it off your mind the better.

We do not need the money more than the assurance which it brings that our efforts are not without appreciation.

Subscriptions commence with January, 1885. New subscribers will receive November and December numbers free.

Remit to Gideon Sibley, 13th and Filbert Sts., Philadelphia, Pa.

MAKE HASTE SLOWLY.

Are not practitioners of the healing art—dentists, as well as physicians—often disposed to rely too little upon that inherent force or tendency in nature to correct many ills in physical life without the intervention of outside influences? Do we not too often forget that all cures are the result of natural physiological processes; that our prime duty is to remove such obstacles as may interfere with their evolution; that, this being done, the highway is opened for a steady return to healthy equilibrium?

With many, that irrepressible inclination to “do something” with every pathological condition which presents, before they fully understand those conditions, often invites failure and mortification for themselves, and disastrous consequences for their patients.

What *is* the abnormal condition, and what is the *cause* of it are problems demanding every effort at correct solution before medical or surgical interference should be resorted to? When we have arrived at a correct solution, how often is the simple removal of *cause* followed by speedy cure; and how often, when this removal of cause has been followed up by “doing something” else, do we find the curative process retarded or entirely perverted?

In a recent lecture delivered at Guy’s Hospital, London, by Dr. Thomas Bryant, he says:—

“The treatment of all accidental surgery, as well as of wounds, consequently is based on a knowledge of natural repair, a correct appreciation of how it is carried out, under the most advantageous circumstances, how it may be interfered with, retarded, or arrested, and under what circumstances it is impossible.

In the treatment of injuries where repair is impossible or has failed, and in the treatment of disease where nature’s physiological processes, however skilfully assisted, have proved themselves incompetent to effect a cure, “operative surgery,” may be called into requisition. The surgeon’s last resource under both circumstances being made available when all minor means to guide or aid nature are inapplicable or have been proved inefficient.

Operative surgery, to be a justifiable proceeding, must be based upon these principles, and the operating surgeon, if he is to rank above

the mere experimenter, or claim the position of a scientific man, must be guided by them." * * * * *

"Learn to know that as a duty you are to remove from the body only what *nature* unassisted cannot cast off, and what, if left, will interfere with life or life's usefulness, and bear always in mind that you are to do this with the least risk to life, with the least sacrifice of parts, and with the least local disturbance" * * * * *

"If you are not sure of doing good, be *very sure that you do no harm*. The patient may die, but take care that he does not do so from any act of yours.

"Need I add, never be tempted to perform an operation from the pleasure it may afford you or the benefit its performance may do you in the eyes of your neighbors, or the whip it may perhaps give you over a brother and possibly a rival practitioner."

Medicine and Surgery have their noble and glorious uses, but who will deny that in their name many shameful blunders are perpetrated by a *meddlesome* interference with natural processes. Our officious friend who feels that *something* must be done may ask—"when in *doubt*, what shall we do?" NOTHING! Better take the chances of recovery by that ever-present tendency in nature to right itself when wrong, than to incur the risk of thwarting it by misdirected medication or instrumentation.

Sydenham said, "I have been long of the opinion that I act the part of an honest man and a good physician as often as I refrain entirely from medicines, when, upon visiting the patient, I find him no worse to-day than he was yesterday; whereas, if I attempt to cure the patient by a method of which I am uncertain, he will be endangered both by the experiment I am going to make on him and by the disease itself; nor will he so easily escape two dangers as one."

The famous Celsus taught that only in manifest danger of death would it be proper to try a doubtful remedy.

While these sentiments were applied directly to medicine, they are not the less appropriate for the consideration of dentists, and we would suggest that in all cases, before "doing something," we should feel reasonably certain as to *why* that "something" should be done.

CONSOLIDATION.

Hereafter *The New England Journal of Dentistry* will cease to be known by that name. We are informed in the October (and last) number of that journal that arrangements have been made whereby it has joined forces with "The Dental Journal Association," and will in future be published in combination with *The Archives of Dentistry*. The latter journal was started early in the present year by the purchase of the *Missouri Dental Journal* "as a nucleus," and has proved itself

abundantly worthy of support. With the accession of the ably conducted and influential *New England Journal*, the new publication would seem to have a most brilliant and successful future. We shall watch with much interest the result of this "combination," and heartily extend our best wishes.

BOOKS AND PAMPHLETS.

THE FORMATION OF POISONS BY MICRO-ORGANISMS. A Biological Study on the Germ Theory of Disease. By G. V. BLACK, M.D., D.D.S., of Jacksonville, Ills., published by P. Blakiston, Son. & Co., 1012 Walnut Street, Philadelphia, Pa. pp. 178.

We have great pleasure in calling the attention of the profession to this little book, so replete with interest and information. It consists of seven lectures which were delivered before the students of the Chicago College of Dental Surgery, and a number of dental practitioners who attended for the especial purpose of the pleasure and information to be gained from Dr. Black, in the recital of his study. The first lecture entitled, *Introduction*, is, with the second and third, historical, and the three give a well condensed epitome or sketch of the Germ Theory of Disease. In these lessons the author has very successfully reviewed briefly the ideas, controversies, and experiments, that have, by a very natural and gradual process, led up to our present knowledge of this subject. There is no other publication from which the novice can so readily procure so correct a view of the magnitude and importance of the labor which has been bestowed upon this interesting study. As the author says, "A history of this subject in its completeness, would be a history of the efforts of men to stay the ravages of epidemic and contagious diseases; a history of the efforts of men to understand the causes of plagues and pestilences; a history of the efforts of men to see farther, and still farther, into the secret causes which produce sickness and diminish the longevity of the race."

The first definite announcement of a belief that disease is caused by organic germs, the author finds was centuries ago, and while since then it has had many able opponents, it has also had intelligent and enthusiastic supporters; so, from that time to the present, the controversy has been increasing, and the number of highly educated and intelligent men who have participated in it could be named almost by the score. With the labors of Liebig, Pasteur, Bastain, Beale, Koch, and others, Dr. Black has made himself familiar, and in giving a condensed review of their work, does justice to both them and himself.

In all of this superabundance of evidence of the presence of micro-organisms in disease, we yet need more conclusive demonstrations re-

garding the practical effect of these organisms in causing any given abnormality; that they are not a result instead of cause, more light still needs to be adduced to satisfy the skeptical.

What is written on Ferments, Plants, Sprouting of Seeds, Digestion, etc., is all of interest, and compensates for perusal. Under "Resorptive Digestion" the doctor speaks of the absorption of the roots of the deciduous teeth, and, in alluding to devitalized roots, we quote, from page 100, the following: "If, however, the abscess does not occur, or if such abscess be cured and the tissue in immediate proximity to such devitalized root be perfectly healthy, it is found that the resorption of the root goes on in a normal manner. The mere death of the root does not interfere with resorption, provided a physiological condition is maintained in the immediately surrounding cells, which are the active agents in the work." Here are some contingencies which I should like to ask my friend Dr. Black if he ever saw maintained, and also would like to know if he ever saw the result (roots absorbed) which he says may take place.

In speaking of Bacteria, page 120, the doctor says, "When we come to consider the bacteria and the allied forms of life, we are amazed and astounded at the wonderful power they possess in the *remoleculization* of matter. This is one of their especial characteristics." "This seems to be the form of life in which the largest amount of food material is consumed and the largest amount of waste products given back with the least building of tissue. The largest amount of semoleculization with the least amount of formed or fixed material."

In the Appendix "Dental Caries," and the various theories regarding the cause, are quite thoroughly reviewed. In this, nothing especially new is elicited, though the germ theory is given much attention. The inquiry as to the possibility of the same process going on in the mouth, resulting in dental caries, as that which removes deadbone, ivory, sponge, catgut, ligatures, etc., is worthy of consideration, but with the surroundings so dissimilar, conclusions should not be hastily drawn. With this brief and imperfect review of the book before us, we must again urge that it is well worthy of purchase and perusal.

C. N. P.

A VIEW OF THE LAWS RELATING TO PHYSICIANS, DRUGGISTS, AND DENTISTS. By RICHARD J. WILLIAMS, of the Philadelphia Bar, Author of "Williams on Landlord and Tenant." Philadelphia: Edmund Q. Bowman. 115 pages. Price in cloth, \$1.00.

In his "Introduction," the author says, "The purpose of this book is to give information as to the laws relating to physicians, druggists, and dentists. All of them, by reason of their presumed skill and learning in their calling, are responsible as specialists. They have the human body as the subject of their operation, and therefore have responsibilities

alike or analogous. They have the same or similar rights and remedies for the purpose of obtaining their charges or compensation for services. Because of these similarities it has been thought proper to collect in one book the laws applicable to each class."

"A large portion of the book comprises what is known as the common law, applicable throughout all of the United States. This is largely so as to those relating to responsibilities and book accounts."

The Appendix contains such Acts of Assembly, as refer to the practice of these professions in the State of Pennsylvania.

The medical, or dental library cannot be considered complete without this little book.

PHYSICIAN'S VISITING LIST, 1885. P. Blakiston Son & Co., Philadelphia.

This standard publication is too well and favorably known among physicians to require any comments from us. The fact that this is the thirty-fourth annual issue, is evidence of its appreciation by the medical profession. Besides being conveniently arranged for from 25 to 100 patients weekly, it contains a large amount of condensed information which makes it of no little value as a book of ready reference.

INDEX TO THE DENTAL COSMOS, VOLUMES I—XXIV. Philadelphia: The S. S. White Dental Manufacturing Company, pp. 367. Price, Half Turkey Morocco, \$6.00.

The fortunate possessor of a set of the *Dental Cosmos* is to be congratulated that he now has the opportunity to make it *complete* by the addition of this index, and the publishers are to be congratulated upon the systematic and most convenient arrangement of its 30,000 references.

The volumes to which it is a key, reflect, perhaps more correctly than any others, the progress and history of our profession for the last quarter of a century, and are eminently worthy a companion which so materially enhances their value and usefulness.

By its aid the vast stores of information they contain are readily accessible, and the inquirer can now refer to their pages with ease and pleasure.

As a *work*, it gives evidence of an enormous amount of patient, pains-taking labor. As a sample of typographical neatness, it is worthy of imitation.

Since its publication it is safe to say that "a complete set of the *Dental Cosmos*" is *not* complete without it, and we predict the owners of these volumes are few who will not also secure this model index. Certainly, any one who does not value them enough to procure it, has a poor conception of their worth.

THE Dental Practitioner.

A MONTHLY JOURNAL OF DENTAL SCIENCE.

VOL. 2.

PHILADELPHIA, DEC. 15, 1884.

No. 12.

CONCERNING BILLS.

S. H. GUILFORD, A. M., D. D. S.

The question of fees; how they should be estimated; upon what based; and their relative figure, has received a fair share of attention from dental writers in the journals, but the question of how and when bills should be presented and collected seems to have been overlooked.

The matter of presenting and collecting bills is a very important, and in some cases almost a vital one, to those beginning practice. It is well enough to earn the fee and enter it upon our books, but it does us no good until it is converted into cash in hand.

Let us consider how we should make out our bills; when present them; and how collect them in cases of delay or neglect. Various customs prevail in regard to these matters, but there is no uniformity. Some use bill-heads with a cut of the teeth printed thereon, and not only itemize each operation, but mark the same on the chart with corresponding numbers. Others have less pretentious bill heads and manage to condense their account into four or five lines, even though several members of a family have been served. A few follow the practice of some physicians and mention no items, but simply record "professional services," and mark opposite the sum total.

The first is open to the objection that the illustrated bill-head is neither ornamental nor in good taste, while the itemizing of operations entails a vast amount of unnecessary labor upon the dentist. Patients, especially the head of the family who pays the bill, but who has possibly not been operated for, very naturally may want to know something of what has been done, but he rarely wishes or cares for the individual items of the account.

This plan therefore does not seem to be the best. The second one appears to be better, as the account is more easily made out, and is sufficiently explicit to answer all ordinary wishes. Should the one to whom the account is sent, wish an account with items, he can ask for it and it will gladly be sent. This would probably not occur once a year.

The third plan is a good one for those who can introduce it, and get their patients accustomed to it, for it entails the least labor of any; but, inasmuch as it leaves the parent in entire ignorance of what has been done, and opens the way for possible dishonesty, it requires for its success a wonderful amount of confidence on the part of the patient, in the conscientiousness of the dentist.

When should bills be rendered? The old time country physician was accustomed to send no bills, and to render them only when asked for, for fear of offending the patients. In this way bills ran along endlessly in many cases, many were disposed of only by the statute of limitation, while fully one-half were never collected at all. The city physician of to-day is accustomed to render his bills semi-annually, in January and July, and if not paid within a reasonable time they are turned over to a *collector*.

Many dentists follow this plan and send their accounts semi-annually, but while it may answer for those who have been in practice many years and have laid by something, it is a long time for the beginner to wait, especially as he has paid for his material in advance. There is no good reason why either physician or dentist should wait six months for his pay (and longer, when not promptly paid). When the merchant allows a credit of thirty or sixty days, he is accounted liberal. Why then should a professional man wait longer? In truth, a bill should be paid as soon as possible after the service is rendered. The mechanic or artisan loses no time in presenting us with his bill after the work is completed.

A plan that prevails with some dentists, and it is certainly a good one, is to have a foot-note printed on the bill-head stating that "bills will be presented the first of the month following the completion of the operation." Patients will thus see that it is a custom with you, and you can feel at perfect liberty to send the bill on the first of the month if you wish to, or if you need the money. There is nothing unreasonable in it, as they will see, and they will not object. We can train or accustom our patients to any reasonable practice on our part, if we but set about to do it.

The young beginner especially, needs his money as soon as he can get it, and there is no reason why he should not have it soon.

He need not send all bills each month, for this would not be expedient in the case of a patient with whom he has not finished, or with families where there is nearly always some member under his care at the time, but all completed bills should be sent at the beginning of the month. With regular families, bills sent twice a year will be sufficient, and at such times a clean sweep of the ledger should be made and all bills rendered except those that are uncompleted.

All bills not paid within a month or two should be sent again, and if not paid then should be followed by a note requesting payment, and

a statement that it is your custom to have bills paid promptly. There need be no fear of offending by such a course, for a reasonable person will see that you are in the right, and either pay you or call or write to explain why the bill has not been paid. Possibly he may ask a little extension of time, which will usually be granted.

The unreasonable person may become offended by such a course, but if he is, get his money and let him go, if he wishes to. You will be better off without him. Better have a small, reliable and prompt paying practice, than a much larger one that is constantly annoying you.

If your bills and note bring no response, put the bill into the hands of a faithful collector, and let him try his hand. If he does not succeed, ascertain whether your client is the possessor of unencumbered real estate. If he is, and the bill be less than one hundred dollars, enter suit against him before a magistrate. The only witness you will need to prove your case, will be your "book of original entry" or ledger. If the magistrate be fair minded and intelligent, you will gain your case and receive "judgment." The sheriff will press your judgment and collect the bill, or levy upon and sell the debtor's real estate to satisfy the claim.

If, for any reason, the judgment cannot be satisfied at once, it remains in force, in this state, for seventeen years, hanging over the debtor's head like the "sword of Damocles." Such summary proceedings will, fortunately, seldom be necessary, but when necessary, they should be resorted to without fear or delay. There is a class of persons who make it their business to swindle all with whom they deal, be they dentist, physician or tailor. They should in all cases be summarily dealt with.

In order to avoid this class as much as possible, all new and unknown patients should be asked for a reference, and then have their standing and character well inquired into during the time that intervenes before their first appointment falls due. Better inquire into their standing before the work is done, than afterward.

It should be made a rule of practice with a professional man, as it is with the merchant, to keep one's accounts collected up as closely as possible. They will usually be paid more willingly by the patient while the matter is fresh in his mind.

In order to insure prompt payment, a practice prevails with a few, of offering a certain discount for cash. This is all wrong, and should be discountenanced. Patients should be given to understand that bills are due when rendered, and if any considerable delay occurs in the payment, we should rather add interest than allow a discount.

Charges for services should be made fairly and equitably, and full payment insisted upon, except where, as an act of charity, it seems proper to make a reduction. To make a reduction in cases where patients are well able to pay, but where they claim that the bill is too high, is bad practice. Experience has shown that when a reduction is

made to please them or retain their patronage, we fail of our purpose. When they intimate that unless a reduction is made they will be obliged to leave you, they will be just as likely to do so when the reduction is made as when it is not.

CARE OF THE DECIDUOUS TEETH.

EDWARD C. KIRK, D. D. S.

The dental organs of children are too often neglected by both parents and dental operators, to the detriment not only of the child's personal comfort and appearance, but frequently to the permanent injury or impairment of its health.

That the responsibility of this neglect rests mainly with the dental profession must be admitted, when we consider our true relation to the patients who place themselves under our care.

On the part of parents this neglect generally arises from the mistaken idea that "as the first teeth have but a temporary office to perform; and will eventually be replaced, it is of little consequence that they decay;" as a result the child is permitted to suffer not only from the immediate results of this neglect, in the shape of frequent and severe attacks of odontalgia but is subjected to the risks of greater distress from the several reflex disorders which undoubtedly follow as sequelæ to diseased conditions of the deciduous teeth.

In view of the wide spread-prevalence of this popular error it becomes the duty of every practitioner, who would subserve the best interests of his patients, to urge upon them the necessity for a proper care of the temporary teeth and explain fully the reasons for such a course.

Again it cannot be doubted that many practitioners shrink from a systematic treatment of these cases, owing to the difficulties encountered in the performance of dental operations in the mouths of young children.

With regard to this there is no doubt that while many real difficulties do present themselves, a little tact, added to a genuine interest in the work, together with gentleness and patience, and above all firm faith on the part of the child that it will be saved unnecessary pain, will cause many if not all the obstacles to a thorough performance of dental operations to vanish at the first sitting.

The most fruitful cause of dental caries is lack of cleanliness. This is a truism, which is universal and is emphatically so when applied to the deciduous denture.

The majority of parents consider it altogether unnecessary or else too difficult of accomplishment to see that their children are taught the proper use of a tooth brush and trained in its systematic use till the habit becomes fixed, and as much of the daily routine as cleansing the face and hands. The one habit is as readily acquired as the other and with

the pleasantly flavored dentifrices and small brushes, which are now supplied, especially adapted to such cases, a child soon learns to appreciate the comfort of a clean mouth long before it can recognize the absolute necessity for it.

But as a painfully small proportion of the children who come to us have had any kind of care bestowed upon their dental apparatus until an aching tooth drives them to our offices for treatment, we are compelled to take them after the damage has been done and the problem presented, is how shall it best be repaired and further trouble be prevented.

In the treatment of children it is absolutely essential at the start that the operator should gain and maintain perfect control of his patient, otherwise all attempts at treatment are futile. In some instances this is no easy task, in view of the fact that the child has heard discussed at home from time to time the perils and torture incident to dental operations, and is fully imbued with what seems to be a prevailing idea, with many people at least, that the dentist is a sort of fiend incarnate, with but two principal aims in life, viz: an insatiable desire to "bore into the nerve," and then charge extortionate prices for doing it. This prejudice in the mind of a child once overcome and its confidence gained is more than half the battle won.

Do not practice the smallest deception on a child, they never forget it, or should the one particular circumstance be lost to their minds, the disagreeable impression and loss of faith towards the operator always remains. If "the liar is a moral highwayman" the dentist who deceives his children patients is a lower order of criminal.

We will suppose a case for example which shall be a type of the majority of those that seek relief at our hands.

A child of about five years of age is brought to us by its mother for relief from an aching tooth; the pain commenced during the previous night; domestic remedies failed to bring relief, the child is worn out and excessively nervous from the continued pain. The first step with the operator should be to form as nearly as possible a close estimate of just how much moral support in the management of the child he can depend upon from the mother. If she is of the Spartan type and feels sufficient confidence in you to know that you will do the best in your power, in the gentlest possible manner, and fully appreciates the necessity of her hearty co-operation in your efforts on the child's behalf, ask her to be present while you operate.

If you feel that you cannot count upon her support, by all means exclude her from the operating room, as the effect of her nervousness upon the child will so intensify its already exalted nervous condition as to render any attempts at treatment futile. By a gentle quiet demeanor and positive assurance to the little patient that you will use every care to avoid giving pain and that you will certainly relieve that which already

exists, you proceed to make an examination and find that a molar is extensively decayed, with exposure of the pulp, which is in a high state of inflammation. Every step in the treatment should be explained as we proceed as besides disarming the child of the suspicion that a painful operation is about to be suddenly performed, it soon begins to take an interest in what is being done, after which it will aid rather than hinder further treatment.

A hand mirror given to the patient, so that each step can be watched, will aid materially in keeping its attention fixed upon what you are doing and away from the fear of being hurt. Having washed out the cavity by a gentle stream of warm water, the looser portions of decay around the margins of the cavity can be carefully removed with good sized spoon excavators, after which a little acetate of morphia, made into a paste with carbolic acid, full strength, which may be flavored with a few drops of clove or cinnamon oil, is placed in the cavity and secured by means of a pledget of cotton and sandarac.

It will not be necessary for this application to use either the dam or napkins as with everything previously prepared; the cavity can be dried out and the medicine rapidly inserted; the tooth being guarded meanwhile by the thumb and forefinger sufficiently to prevent inundation by the saliva. This will do for the first sitting. The patient is relieved and is dismissed with the instruction to return in a couple of days. At the next sitting the pulp will usually be found partially putrescent, and at this stage the writer knows of nothing more efficacious than treatment with sodium carbonate, a good sized particle of which should be sealed in the cavity for several days, after which the saponified contents of the pulp chamber can be washed out with hot water and a permanent filling inserted. The most satisfactory method for filling devitalized deciduous teeth in the writer's experience is simply to thoroughly dry out pulp chamber and cavity and insert a small pledget of cotton thoroughly saturated with beechwood creosote, leaving the root canals empty, and fill the cavity with a good article of hard or "high heat" gutta-percha. Such a filling is readily removed in case of a future pericementitis and is easily replaced as it wears out, besides perfectly preserving the tooth.

Cavities upon the masticating surfaces not involving the pulp are best filled with tin or amalgam, though where the case can be frequently seen and proper attention given, the zinc oxyphosphate fillings often answer a good purpose.

Approximal cavities require more careful treatment, as the proper preparation of a cavity in these positions becomes difficult owing to the danger of pulp exposure during excavation, and the pain produced is often more than a child will willingly bear. Where the approximal molar cavities are shallow, and from the nervousness of the child it is impossible to obtain proper anchorage, the writer has adopted with

much satisfaction, a suggestion made some time ago by Dr. J. L. Eisenbrey, to bridge the filling, which in this case is to be of amalgam, across from one cavity to the other, making what has been aptly termed a "dumbbell" filling,—besides fully meeting the requirements of preserving the tooth structure, it affords complete protection to the septum from impaction of food. Where wide separations exist between the temporary molars, much distress is frequently occasioned from this very cause, as the tissues of the child are more yielding and soft than those of the adult, and the little one often suffers what is equivalent to a genuine tooth ache, from pressure of impacted food upon the tender tissues of the septa between the molars. So far but one objection to this method of filling arises, viz:—as the deciduous molars are shed at different periods, the above method may interfere with this process, but upon observing the cases that have been so treated, the result has been that when the first molar was ready to drop out the filling came along with it, at which time a simple gutta-percha filling in the mesial cavity of the second molar was sufficient to tide it over till the period of its removal by the eruption of the second bicuspid. The same plan of treatment can be applied in difficult cases to the approximal surfaces of the first molar and cuspid. The use of the dam greatly facilitates the proper performance of these operations, as it affords a protection not only from the moisture, but to the septum, while the amalgam is being placed against it, leaving a smooth surface on the amalgam which is against the soft tissues. The dam can be removed by stretching it towards the tongue or cheek and dividing the portion between the holes with scissors. It has been recommended that where the rubber cannot be applied, a fold of two or three thicknesses of tin-foil laid against the septum would answer the same purpose as the dam, and be removed upon completion of the operation.

Caries upon the approximal surfaces of the incisors rarely requires treatment by filling. When slight it is best removed by chisels or disks, and the surfaces polished with pumice and tape. If it is thought best to fill, the use of gutta-percha or oxyphosphate of zinc answers the purpose, though as these teeth are the first to be lost, it is seldom that they require filling unless they have been attacked by caries very early in life.

A word with regard to extraction. A prominent writer has said, that "as a general rule the temporary teeth should never be removed when the operation requires more force than can be exerted by the thumb and finger." The only exception to this is in the case of devitalized teeth, in which the normal absorption of the roots has been arrested, in which case it is far better to use a small elevator or a heavy hoe excavator, as by this means no danger of luxation of the permanent successor is incurred. If it becomes necessary to use forceps, they should be small and delicate, and applied cautiously and with judgment.

A due regard and care for the teeth of his children patients, should animate every operator; for the reason than that the highest object of our profession is the conservation of health, and relief of human suffering; but leaving this out of the question, it should be a sufficient incentive for our best professional endeavors that the reward comes to us in the confidence and faith established in us, and remains unshaken as the child develops into the man.

PERSONAL RECOLLECTIONS OF A DENTIST OF THE EARLY DAYS.

BY DR. L. W. BRISTOL, LOCKPORT, N. Y.

Read before a Union Meeting of the Seventh and Eighth District Dental Societies of the State of New York, held in Rochester, October 28 and 29, 1884.

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The practitioners and students of dentistry of the present day know little of the difficulties and disadvantages under which those practicing fifty years ago labored. There were no dental colleges, no dental depots, no dental instrument makers, and in the country no regularly settled dentists. They travelled about with their "kit" under their arm.

The teeth used in those days were human teeth, procured from the battlefields or hospitals, preserved in jars with spirits of camphor. They used to say of a prosperous dentist: "Why he is rich, he has a whole keg of teeth." They also used the teeth of neat cattle, or carved them out of a block of hippopotamus ivory, leaving the enamel in front, like the sample I will show you.

Dental laboratories were sealed sanctums, within which no other dentist was ever admitted. Dentists never recognized a lady or a clergyman in public, no matter how intimate they were in private, for people would say "he has been putting in teeth for them."

There were fanatical people in those days, just as there are now, only more so. They quoted the passage of "An eye for an eye, and a tooth for a tooth." The Quakers, my ancestors, had these words always upon their lips, arguing that if it had pleased Divine Providence to remove a tooth, or an eye, or the hair, it was sinful to oppose the will of God by an attempt to replace it by artificial means.

If a man in those days desired to enter the dental profession, and thought he had ingenuity and mechanical skill enough, all he had to do was to throw down the lap-stone, hang up the strop, throw away the press-board and goose, or the printer's rule, and go in on his nerve. In the first place he had to make his instruments, and this required mechan-

ical skill. If he found a piece of work that some other dentist had done you may be sure he examined it carefully and closely. I well remember that in 1833 I went three miles, to see a man who had two false teeth. They were made of "sea-horse," and attached to adjoining teeth with fine gold wire that had cut the teeth they were attached to nearly one-third off.

I have instruments in my possession to-day that I made forty years ago, and they are yet doing good service. Many an engagement have I filled by sneaking around just at daylight, by the back way into a back chamber, to prepare and insert two or three teeth for a young lady, making a long, tedious day of it, always stipulating that the cross dog should be chained or shut up.

We first, by measurement, fitted a block by the right curve to fill the space to be supplied with teeth, and then, with a camel's hair pencil dipped in rouge mixed with alcohol, painted the gum and pressed the block on to receive the red impression, then carved, scraped, gouged, and dug, painted and tried again, and so on, until a perfect fit was secured. We then proceeded to carve out the teeth, leaving the enamel in front. It was rude looking, but it filled the bill. We saved every root, and pivoted to it, sometimes fitting six teeth to two roots. If the roots were gone, we tied the blocks in with silk thread, or gold wire.

I have seen a block of six teeth pivoted to the canine teeth, worn until they could be removed and cleaned, roots and all, then put back and worn for a long time afterward without any apparent inconvenience or inflammation. You see that the new process of bridging in blocks of teeth is no new theory. I well remember when a great discovery was made; that of taking an impression of the mouth with wax, and pouring in calcined plaster of Paris. Oh! that was a most wonderful discovery, and it was kept a secret for a long time by the knowing ones; but it finally leaked out. If we happened to meet another dentist, and he was anyways inclined to be social, you may be sure we "set 'em up" frequently, and when he was "full" we wormed the secret out of him, if he had one.

Following the carved work came the old French Bellah teeth, of which I will show you specimens. They were mounted on gold plate with a dowel pin soldered to the plate, and this soldered to the platina clamps baked in the tooth. You will see that they were opaque; a muddy hue; no life-like shade. Still they did not look bad in the mouth of an aged person. Then came the Stockton pivot teeth. They were a great improvement in their life-like appearance. Dentists advertised the "Silicious incorruptable teeth," "diamond," "pearl," and lots of other fancy names. We struck up a plate, soldered the gold pins, and attached the teeth with hickory plugs; immersed them in water twelve hours or more, and then with a good deal of anxiety removed the plate and ex-

amined to see how many had burst by the swelling of the wood. We always directed our patients to keep them wet. If the patient was ill, and by carelessness the teeth were suffered to get dry and tumble off, they were brought back to be again put on where they belonged, and it was quite a job sometimes to get them right.

Stockton sent out his teeth by the peck. I remember that an old man used to come around about once in six months, with an old striped bag full of them. He would pour out about a couple of quarts, and we would make our selection.

Next came the single gum teeth of Stockton, with platina pins baked in the tooth. When Stockton first manufactured his single plain and single gum teeth, with platina pins, to be backed with gold and soldered to the plate, he kept it a secret. He had a large stock of pivot teeth on hand. He sent out peddlers in every direction, put the price down to ten cents each, for Mr. Stockton was "going to change his business." The agents did not say directly that he was going out of tooth making, but hinted as much. The consequence was that every dentist laid in a big stock, used all his ready money, and borrowed more to buy teeth.

In about one month other agents came around with the improved teeth. We were all sold; had to abandon the old pivot teeth and use the new. Then there was some tall swearing at the trick. Tieman, the instrument maker of Chatham Street, had bought a heavy stock. You ought to have heard that old descendant of father Abraham curse Stockton. But it was of no use. He had to succumb to the inevitable.

About 1834 the dentists began to establish offices, or rather rooms, usually at their residences or boarding houses. Ladies and gentlemen, and sometimes a clergyman, were seen calling on them. If a student desired to learn the profession he had to pay liberally for his instruction. I paid a dentist, whose office was under the printing office in which I was employed, fifty dollars for the privilege of getting into his office for one year. He was to answer any question pertaining to the business—truthfully if he could—and I was to come whenever he called me to hold his patient's head, when a tooth was to be extracted. Dentists in those days never attempted to extract teeth without some one to hold the head.

It has been said that history repeats itself. In those days we used to replant and transplant teeth; but we soon found we not only transplanted teeth, but scrofula and other diseases, and the practice was declared "malpractice" and abandoned. In filling teeth we used lead, pounded very thin, and tin foil. As for gold, the only wonder is that we made as permanent fillings as we did; the foil was so harsh and brittle. We always filled the teeth so as not to have the fillings show. If they did, or a gold clasp was visible, our patients always found fault. How changed the tastes of people now. Richmond gold crowns and contour fillings would then have been declared unnatural. If a tooth

was gone we tried to replace the same with one as near the shape and color of the other teeth as possible.

About the year 1833 or 1834, I have lost the exact date, the notorious Crawcours of London and Paris opened an office in New York, and for six or eight months made a small fortune by filling teeth with amalgam, asserting its qualities to be that of "making a stump into a sound tooth at once, as if by magic!" They called the compound "the Royal Mineral Succedaneum." These Crawcours were the father, mother, brother, and sister of the amalgam practice. They used the old French five franc pieces, filed up and mixed into a soft paste with mercury. Many people who had good serviceable gold fillings, that had stood a long time, had the gold dug out and the amalgam substituted, "because the gold showed." These Crawcours had a successful run of it. They were not dentists, and knew but little of the profession. When they found that warrants were out for their arrest they dug out, took a packet ship, and were well out past Sandy Hook before the officers got after them. They brought amalgam into bad odor, but after a few years the profession got to using it again, although there then was, and is now, a good deal of opposition to it. It is only within a very few years that we have learned to properly use it, and to succeed in making good fillings.

Of the bases for artificial dentures we have had gold, silver, porcelain, gutta-percha, pyroxyline, rose pearl, aluminum, platina, celluloid rubber, and Josiah Bacon. In 1838, when I was located in Syracuse, practicing with Dr. Bliss, there came into the office one afternoon a lady who showed us a set of gum block teeth made by Dr. Thos. Harrison, of Lockport. They looked natural, fitted well and it was the best piece of work we had ever seen of the block gum teeth. Bliss said to me: "You are young and have no family; suppose you go to Lockport, get acquainted with him, learn his method, and come back, and we will form a partnership and do that kind of work." I thought the matter over and decided to do so; I packed my gripsack, took the grand old Erie Canal for Lockport, where I arrived in good time, and found Harrison was at Lewiston. I took the stage for that place, where I arrived about eleven P. M., and found him at the Lewiston hotel, lying in the corner of the bar-room, behind the stove, pretty drunk. The prospect did not look promising, by any means. Next day I made his acquaintance, told him what I was after, and proposed to help him. He consented, and I assisted him to sober up, got his hair cut, bought him a new suit of clothes, and he made quite a respectable appearance. We went to Lockport, took a back room in the third story of a block, put up a furnace and commenced business. But I found that the work did not stand the test of time in the mouth. The pieces were porous, absorbed the saliva, and soon became discolored. We could not repair by reheating, for they would fly all to pieces, and pop like corn. He kept no

record, never weighed the ingredients, guessed at the amount, and as a consequence never had two bodies alike.

Here let me say that I have spent more time, passed more sleepless nights sweating over a hot furnace trying to surmount difficulties, or making block gum teeth moulded over a cast of the mouth, and to be worn in the same mouth from which the cast was taken, than over any other branch of the profession, without ever having succeeded or been thoroughly rewarded, and I never expect to be ; the shrinkage, warping, checking, bulging, never has been overcome. The composition of the block must be so equalized that while some of the materials shrink others must oxydize and increase in bulk. This retains the shape of the cast, but makes the body porous. Then you rely on enameling to fill the interstices. It will do this, in a measure, on the surface, but not all through the body, which will absorb the fluids of the mouth, with some patients more than others.

John Allen, of New York, came the nearest to perfection of any man, but his work failed in time. His method had the advantage of using teeth already baked. A platina plate was swaged, the teeth backed with platina and soldered to the plate with fine gold foil. The interstices were filled with a granulated body, the piece invested in asbestos and plaster paris, and baked. Then it was enameled and baked again; but to an experienced eye, in a strong light, cracks or checks would be apt to show on cooling. By oiling the block the checks would not show; but time and human saliva are very searching, and when a plate began to give out it went all to pieces. It had one advantage; it could be re-enameled and baked again.

About 1835 or 1836 Creosote was introduced to the public, and created a good deal of interest in the medical and dental profession. Some dentists went so far as to say that they had abandoned extracting teeth, and one in Syracuse advertised in large letters on the awning post, the whole length of a block: "Toothache cured by Creosote without extracting" He charged one dollar for introducing a small pledget of cotton saturated with Creosote, and covered with gum mastic and turpentine.

A great many discoveries and some valuable improvements were made. One dentist, in an eastern city, had very delicate instruments with which he "cut the ligamentum dentatum," and the teeth tumbled out easily, and our patients would ask us, "have you got an instrument to cut the ligamentum dentatum?"

In 1837, a dentist by the name of Jacks, of Catskill, invented and patented a double air-chamber plate along the alveolar ridge. This chamber was perforated with one-eighth inch holes about half an inch apart, and soldered to the main plate. The patient sucked the gum into the holes as one would suck a key on the lips, and, if worn long enough, the "teat" would become strangulated and drop off, remaining in the

air chamber, which would also become filled with food, mucous, etc. There was no way to get at it to cleanse it, and it made one of the most filthy dental structures imaginable to mend, and forced one to open his doors and windows to let the stench out.

Another dentist patented flexible rubber air chambers, and sold the exclusive right to any dentist in the locality who would pay the highest price. The flexible had quite a run for a time, but the rubber decomposed in the mouth, and the dentist soon had all he could do repairing plates broken through the centre, and the patent went into oblivion.

Some one has said that instead of going to California to-day for gold, it would be better to go to our cemeteries and get the gold buried with the dead. I have taken some pains to examine the assertion, so far as my own practice is concerned, and I have found that from 1839 to the introduction of rubber work, the average amount of gold plates, gold solder, and gold foil used in my practice amounted to a trifle over thirty-one dollars each month. One can see that if others in the profession used the same amount (and many, probably, used more), a vast amount of gold is buried in our cemeteries.

In 1848, Morris Levett patented an enamel for coating a silver or gold plate the color of the natural gums, doing away with gum teeth. A man by the name of Englebright was the agent to sell the same. He was a sweet talker, and showed many specimens of gold and silver plates enameled. They looked well, and seemed to be a desirable improvement. Levett said he had sold over forty thousand dollars' worth in the last three months. He came to Buffalo, visited the dental offices, and offered to sell office rights, but preferred to sell territories. We met at the office of a prominent dentist to see the enameling process. I was requested to conduct the experiment. While doing so, first one would retire with the vendor, then another; finally the dentist in whose office we were retired and had a private talk, and when they returned we were told that the doctor had purchased the exclusive right to the county of Erie, and if we wanted an office right we must apply to him. He had not made up his mind yet what would be the price, but would let us know in a few days. We all looked chap-fallen, took our hats and stepped down and out. After I retired to bed, the thought struck me that the enamel I had used in making artificial eyes might answer the purpose. The next day I tried it, and found it worked equally as well as Englebright's. I enameled a plate, showed it to him, and he would not believe but that I had used Levett's, until I enameled another piece in his presence, when he was satisfied that Bristol's artificial eye enamel would do as well as his.

He had taken in part payment for the exclusive Erie County right a gold watch valued at one hundred dollars. He gave half of an office right to me for Lockport, valued at twenty-five dollars, if I would keep still. Having occasion to visit Lockport, where my family resided, I

found Englebright there. He had got the dentists all excited. I had given him an order on my partner for his half of an office right. In the evening they all met at my old office, and again I was requested to conduct the process. While doing so the old game was repeated; first one would retire with the agent, and then another. Finally Dr. O. W. May offered him his house and lot for one-half of the State of Pennsylvania. I tried to stop May, but it was of no use. He was bound to get rich out of the enamel. Englebright called me out and said: "Your family is sick, and you know too much. Take this gold watch and clear out. Stay away from Lockport one week." I pocketed the watch and left, next day returning to Buffalo. In about a week Englebright returned to Buffalo. In the meantime one Buffalo dentist had written east, and found the thing a humbug, and threatened the agent with prosecution for fraud. They finally compromised by the agent giving back the watch and part of the money, he taking back the right to Erie County. He came to me and said if I would give up the watch he would have the right assigned to me. I did so, and am still the sole owner of the right to Morris Levett's enamel for Erie County. If any dentist in Buffalo wants an office right, let him come to the captain's office, and I will give him a license to enamel for life, free of charge. Don't you call that liberal?

When I look back along the pathway I have trod in dentistry, it is gratifying to observe the great improvements that have been made from time to time. The profession, from a small number of self-educated men, jealous of each other, has now become a multitude of liberally educated men, ready to impart to one another all desirable discoveries and improvements, all trying to elevate the practice. It is especially gratifying to me that I was one of the four men who shook hands on the platform of the depot at Trenton Falls, pledging ourselves to go home and set to work to found "the Western New York Dental Association," and to invite all practicing dentists west of Cayuga Bridge. This we did, and the call was signed by B. T. Whitney, Buffalo; Geo. E. Hays, Buffalo; E. F. Wilson, Rochester; L. W. Bristol, Lockport.

At the first meeting B. T. Whitney was elected president. We had a largely attended meeting, and a kind of dental love feast, at which some acknowledged that they had done things in the past that were unprofessional, but they would do so no more.

That association was the entering wedge that culminated in our present State society and Law. Two of the men that signed that call have gone to their long home, honored and beloved by all their professional brethren, and their memory will always be cherished. Two are left to hope and pray that a still brighter and better future is in store for those practicing the profession throughout the United States.

I have had my day, and it has, in a measure, been a stirring one. I am now getting old, and my locks are whitened. You have urged

me, before I shall have left you forever, to give you some of the reminiscences of early dentistry. This paper is in response to that request; it is necessarily a thing of shreds and patches, but it will give you some idea of what we older ones have passed through, scenes never to be re-enacted. We old heads must now step down and let you younger men have your day, and I hope it will be a better one than ours has been.—
Independent Practitioner.

HYDROCHLORATE OF COCAINE, THE NEW LOCAL ANESTHETIC.

BY J. MORGAN HOWE, M. D. S., M. D., NEW YORK, N. Y.

At the Ophthalmological Congress recently held in Heidelberg it was demonstrated that a two per cent. solution of the hydrochlorate of cocaine, dropped into the eye produced complete local anesthesia, so that a probe was pressed into the cornea until its surface was indented, and the conjunctiva was rubbed and seized with forceps without producing pain. This condition of the sensory nerves lasted for about fifteen minutes, when sensitiveness began to return, and there resulted no irritation of any kind from the solution. Since the news of this wonderful discovery reached this country, and was published in the *Medical Record* of October 11, medical men have vied with each other in demonstrating the local anesthetic properties of this drug in operations on the eye and other tissues and organs of the body, especially on mucous surfaces. It is not strange that many dental practitioners here have thought of testing its applicability to dental tissues. The drug has been and is very scarce in this market, but I was able to obtain a small quantity of a two per cent. solution on October 20, with which I began experimenting the next morning, and will detail some of the results.

A young man had a large approximal cavity in a bicuspid; the dentine was sensitive, the patient nervous and afraid of pain. After adjusting the dam and drying, the solution was applied; after ten minutes, tested with an excavator. I thought there was some anesthetic effect, but the patient would hardly admit it. After five minutes' more trial there were no such decided results as to be very encouraging. In the same mouth an application was made to a partially devitalized pulp in a lower molar, and attempts were made to remove it, but without success, although I felt certain there was a decrease of sensitiveness. From this time experiments were made with rather discouraging results, the patients being nervous and loth to admit favorable results so long as any pain was experienced, and I was careful not to influence the mind of the subjects. On October 25, however, on applying the solution to a very sensitive cervical cavity in a cuspid, in the mouth of a very intelligent lady, the testimony was decided and positively favorable. Pain was not entirely abolished, but the preparation of the cavity was con-

cluded with much less suffering on the part of the patient than I had ever witnessed in any similar case. My hopes were so far confirmed that I concluded to ask a few professional friends to join me in the experiments. I made applications to several sensitive cavities during the next three days, with some anesthetic effect in each case, but the results were not very satisfactory. In all cases previous to this time I had allowed the solution to remain, moistening the cavity—while I cut the dentine—with the idea of its continued action. In preparing a very sensitive cavity on October 29, the hoped-for abolition of sensitiveness seemed to be entirely wanting, and while slowly cutting, as I was able to do, the cavity became very dry, and sensitiveness diminished in a marked degree. Afterward, on the same day, a young miss presented, having deep grooves across the central incisors, from arrest of enamel development, one of them having become so sensitive that she could not brush it without pain. After adjusting the dam the cocaine solution was applied to this groove, and the preparation of another tooth for filling was commenced; but after several applications and the lapse of nearly half an hour, no lessening of sensitiveness was perceptible, while it was moist with the solution, but when I allowed it to become perfectly dry, all sensation disappeared when it was touched or rubbed with an excavator. A few days afterward this young miss informed me that the anesthetic effect on the dentine lasted through the whole evening, so that she could rub the groove with her nail without sensation; but the next morning it was as sensitive as ever. At this time, and at a subsequent sitting of the same patient, in cavities in molars, I failed entirely to get any decidedly favorable results from the cocaine solution, either while the cavity was wet or dry. Another case presented similar peculiarities—that of a young lady with a cervical buccal cavity in the second superior bicuspid, which was exquisitely sensitive. The solution had very marked anesthetic effect, so that the preparation of the cavity caused almost no pain. On a later day, for the same patient, the same application was made to approximal cavities in molars with very little apparent effect. An application to exposed cementum, on the labial surface of a cuspid, where no decay existed, was quite successful in relieving all sensitiveness for the time.

In a letter to me dated November 6, 1884, Dr. S. G. Perry says of the solution of cocaine salt:

“On October 27, the day on which you handed me the hydrochlorate of cocaine, I used it for the excavation of sensitive dentine for four patients. It was successful in each case,—markedly so in one case, that of a physician who came begging me to delay operating upon a left superior bicuspid until he or I could get for trial some of the new local anesthetic. He was delighted when I told him that I had a few drops of the medicine, and would try it at once. The cavity reached very

near the pulp, and was very sensitive. It had been painful more or less for some days, and he shrank from any disturbance of it. After applying a drop of the medicine and waiting a few moments, I was able to excavate the cavity very thoroughly without causing him pain. He said it felt as if I was cutting upon a dead tooth. The tooth was filled with oxyphosphate of zinc, and he left the office a firm believer in the new anesthetic. I saw him yesterday, and he reported the tooth in every way comfortable. The other three cases were those of cavities of marked sensitiveness, and in each one there was almost entire freedom from pain in excavating after the medicine had been applied for a few minutes.

“The next morning I had an opportunity of applying it to the extremities of the pulp in the roots of a superior left molar. The bulbous portion of the pulp had been devitalized and removed, but there was persistent vitality at the extremities of the roots. The medicine was applied, and after a few moments it was possible to pass the broach beyond the points in the canals where pain was felt at first. By persistent effort small portions of the pulp were drawn out, until finally the broach was distinctly felt to reach the closed end of the roots. There was some bleeding, which ceased soon after the canals were cleaned by shreds of cotton rolled upon the broach. There was practically no pain during this operation.

“My next case was that of a lady who desired crowns placed upon the roots of the two superior centrals. The pulps were not exposed, but the teeth were very badly decayed and very much broken down, so that fillings of any kind would have been only a source of distressing deformity, and I was quite ready to accede to the lady's wish. I determined at once to try the medicine. The dam was applied, and after the softened, discolored dentine was removed and sensitive places reached, the medicine was applied and the patient directed to tell me when pain was felt in excavating. Sharp, spoon-shaped excavators were used, and the dentine was cut away in one cavity and then the other until sensitive places were reached, when the medicine was again applied. This was repeated until the pulps were exposed. After this more rapid progress was made as the soft pulp-tissue seemed to come more readily under the influence of the medicine. In the left central a pulp-stone was encountered and removed. This pulp bled more freely, and after the nodule was removed the pulp yielded more readily and was removed first. The pulp in the other one required more of the medicine, and considerably more time was consumed in its removal. In cutting through the dentine, when pain was felt the medicine was applied, and the other tooth was operated upon. The pulps were teased out little by little with delicate piano-wire broaches, made with delicate hooks on the ends. Considerable bleeding was encountered, and this seemed a hindrance, as it diluted the medicine—which you informed me was only a two per cent. solution. The closed extremities of the roots were

reached, and the canals well swabbed out with shreds of cotton, which were rolled on the broaches and rotated in the canals to entangle and remove the torn parts of the pulp, in one hour and fifteen minutes from the time the patient took the chair. During this operation no pain worthy of the name was felt by the patient. She said that the putting on of the dam with the floss silk hurt more than any other part of the operation. There was no chance for the imagination of the patient to have a bearing on the case, for she did not know what I was doing until the pulps were laid bare and the pulp-stone removed. Then, being impressed with the remarkable power of the medicine, I called my associate, Dr. Wm. Woodward, into the room, and, in explaining to him what I had done, she became aware for the first time of the exposed condition of the pulps of her teeth. When she left my office there was no trace of vitality in the canals of either of the teeth. The broach could be passed up to the closed ends of each of the roots; the canals seemed to be entirely clean, and the bleeding had about ceased. When she came back, the next day, at the extreme ends of each of the roots there was a little sensibility and a little trace of fresh blood after exploring with the broach. There was no doubt in my mind but that there was a very little of the extreme ends of the pulps left in the roots, and that these had regained sensibility after the influence of the medicine had passed away. Another application of the medicine enabled me in a few moments to remove all that was left, so that the next day after this when she called there was no trace of vitality. The teeth are now filled with wax and gutta-percha, waiting until I can get time to complete the operations upon them. I saw them to-day, and they are, and have been from the first, perfectly comfortable.

“Such unvaried success with the medicine gave me great confidence in its power, so that I was quite unprepared for the failure which followed its use the same afternoon. A young lady for whom I used it in excavating several cavities in the incisors insisted that it did no good whatever. I have also used it several times since in cases where it seemed that no effect was produced upon sensitive dentine. In one case I had no success with it until the cavity had been thoroughly dried with hot air. Then I cut quite freely without pain.

“I have been greatly interested in the testimony of patients after its use. One lady said it gave her tooth a dreamy, far-away feeling. Another said it gave her tooth a strange, numb feeling, like that of a stiff joint that was regaining use and sensibility. I have used it several times when it seemed to operate upon the softened dentine, but was inoperative when the dense structure of the tooth was reached. Its variable action has greatly puzzled me. I am at a loss to account for such undoubted anesthetic effects in some cases and the absence of such effects under seemingly similar conditions in others. But the facts which I have related have impressed me with the belief that this new remedy

will play an important part in our list of dental remedies. One must trust the evidence of their own senses, and I have seen enough of its effects to satisfy me that it is a remedy that should receive our most earnest attention. I congratulate you, my dear fellow, upon probably being the first to use it upon the teeth."

Dr. C. F. Ives reports :

"My successes and failures are about equal. I find thus far that it works most effectively in teeth above mediocrity in quality, and in patients over twelve years of age. In younger patients, with soft, white teeth, I have had no success whatever. I had great hopes that it would be useful in removing the pulps from teeth after the application of arsenic, but thus far it has not been successful. I find that the employment of warm air in the cavity is of great assistance."

Dr. E. T. Payne, in a letter dated November 6, says :

"Having used it in numerous cases, my successes encourage the belief that the drug will be found of great service in our profession. I will detail two cases: Dr. S., of this city, called to get relief from a twelfth year molar, in which the pulp was nearly exposed. After adjusting the rubber-dam and removing the accumulations in the cavity, I found the dentine extremely sensitive. The doctor told me he had used the cocaine successfully in the removal of hypertrophy in the nostril, and inquired if my attention had been called to it. It was my intention to use it without his knowledge, but, as that was no longer possible, I did it with his consent. On a piece of spunk I carried enough of the two per cent. solution to the cavity to flood it, and allowed it to remain ten minutes; then, drying the cavity, I prepared it to my full satisfaction without his flinching in the least. The cavity was filled with gutta-percha after wiping it with creosote. There has been no appearance of trouble since, although the pulp was nearly exposed.

"Another interesting success was that of a young lady for whom I had occasion to fill a lateral incisor. After adjusting the rubber-dam, I found a cavity with very sensitive dentine. In order to get exact data, I prepared one part of the cavity before using the cocaine; then, with a piece of cotton, I saturated the cavity, and, pretending to be obliged to be excused, I left the patient ten minutes. On my return I dried the cavity and continued the preparation, without the demonstrations which characterized the first part of the cleaning and shaping. This I consider a fair test for the reason that the patient did not know that a drug of any kind was used.

"Some failures and some comparative failures induce the belief that the two per cent. solution will not prove of great benefit except in cases where there is great vascularity. With a concentrated preparation I have bright hopes, in most cases where a local anesthetic is desirable."

Since the receipt of this interesting though variable testimony as to the value of the very weak solution of cocaine salt, Dr. Ives obtained what

was represented to be a four per cent. solution, and some of a ten per cent. solution, which he kindly shared with me. A few trials with these preparations seemed to indicate that they were no more certain in their action than the weaker solution; but these latter were prepared here from the coca leaves, or fluid extract, and I suspect that the attempt to isolate the alkaloid was only partly successful, and that the drug was unreliable. Merk's alkaloid is nearly white, and the crystals of the salt make a colorless solution. There are two salient points in the record of these experiments to which I will call attention.

First, there were many instances in which almost complete loss of sensitiveness in dentine was produced, and the removal of two living pulps without pain by Dr. Perry is no less remarkable than any of the operations that have been performed on the eye. The lady for whom this was done called on me and told me in effect what Dr. Perry has written.

Second, in several instances in which the dentine seemed as sensitive as ever while wet with the solution, almost complete anesthesia was obtained by drying the cavity thoroughly. I have strong hope that when a reliable stronger solution can be obtained the remarkable variations in results will disappear; but we have much to learn about this wonderful drug. One phenomena has occurred which it will be well to note—after about two weeks a fungus growth appeared in my solution, which, as time passed, seemed to destroy the efficacy of the drug.—*Dental Cosmos*.

SOME NEW VIEWS UPON HEREDITY AND THE TRANSMISSION OF DISEASE.

BY W. B. FLETCHER, M. D.,

Superintendent of Indiana Hospital for the Insane.

A former member (now deceased) of the "Association of Medical Superintendents of American Institutions for the Insane," was in the habit of speaking of that august body as the "Association for the Protection of Superintendents of American Institutions for the Insane, and the Perpetuation of Insanity."

One might believe this change in name well suggested, who would read the last (July) number of the *American Journal of Insanity*, which is a mere report of the proceedings of the Society it represents, and contains but one article of note or originality, and that is by the editor; being a reprint of his address, as retiring president of the Association.

The article might properly have been headed, "An excuse for some remarkable testimony, upon the trial of Guiteau; or, how to twist facts for fees."

"Heredity" is the title of the address, and may be summed up in a few extracts, which show just how far we may and may not inherit.

(p. 20) "Heredity, I said at the outset, is an indisputable fact in nature. It is implied in the very words, 'genera' and 'species' according to which every organism is originated 'after his kind.' Nothing I have said questions or militates against the fact of the transmission of race types and characteristics of family, or tribal or national traits." And that is all of heredity. It appears, for convenience of conscience, that the observed and tabulated facts of scientific men, from Moses to Hippocrates, and Hippocrates to the present day, are to be set aside; and that biology, physiology, botany, geology and pathology have taught us nothing. Physicians for thousands of years have been misled, and facts known to every farmer, breeder or gardener are not facts. (p. 4) "An insane diathesis is a pure verbal fiction." (p. 6) "No person ever became insane simply because his father or mother, or both, or his grandparents were insane. No person ever became insane simply because of any impressions arising from parentage upon either physical or mental constitution."

Physicians and pathologists will be pleased to know (p. 7) that "diseases are accidental states produced from causes outside of natural bodies and natural states." Using the author's own words in his comments upon a statement of Dr. Clouston (p. 16), "it seems to be impossible to put scientific and intelligently consistent meaning into such language as this." Verily, the sun breedeth maggots in a dead dog.

In another place we are informed that "cross eyed, near-sighted vision, and such other physical deviations as have been mentioned, *it must be borne in mind are not instances of disease*" (the italics are ours); and yet, strange to say, cross-eyes, and near-sightedness are treated of in all works of medicine and surgery, both special and general; and where can we place the cases of blindness tabulated by Lucus, Dufau, M. Pauli, Sir Henry Holland and hundreds of others, where blindness was a following of certain parents, when one or both were blind, for several generations. "In the family of Le Compte alone thirty-seven children and grandchildren became blind, like himself, and the blindness in this case occurred about the age of seventeen or eighteen years, for three successive generations."*

The last statement we shall quote would be a boon to the human race if it were only true—"Disease is not transmitted by birth as disease, except through blood poisoning of the parent—as leprosy, syphilis, and, perhaps, cancer." Not a word of consumption, which, next to insanity, there are greater proofs of direct heredity than all other diseases. But these are either not diseases, according to the paper before us, or are "produced from causes originating outside of natural bodies and natural states."

* *British and Foreign Med.-Chir. Review*, April, 1861. See, also, *Encyclopédie Pratique de l'Agriculteur*, tome viii, p. 678. Also, articles by Finley Dun, in *Journal of Royal Agricultural Society*, vol. xiv, xv, xvi.

“However, in syphilis (continues our paper) it ends in the first generation. The deteriorated child of a syphilitic parent cannot transmit syphilis. If the child of syphilitic parents is born healthy, syphilis cannot be developed in any of its forms as the results of parentage alone.” Yes, *if* it is “born healthy,” its blood is uncorrupted by syphilis; but every physician has observed that *apparently* perfectly healthy children are born of consumptive, syphilitic and insane parents, and yet, at or after puberty, the disease long slumbering in the blood begins to awake and germinate and develop its fruit and its seed—“after its kind.” Is there probability of a healthy child from such parents?

One of the most eminent syphilologists of France has said: “A man with constitutional syphilis will live his life a syphilitic, breed syphilis, and his generation following will be syphilitic, whilst he stalks a syphilitic ghost through Hades.”

Would that we could believe this address springs from ignorance rather than cunning.

Would that it were true that gout, rheumatism, consumption, insanity, epilepsy and blindness were all “accidental states produced from causes originating outside our natural bodies and natural states,” and that they would die with their unhappy possessor, or be eliminated in one generation.

The baneful influence of such an article as this on “Heredity,” from one whose age and long observation should call forth respect, can scarcely be measured. Were it promulgated where any one outside the Association of M. S. A. I. I. would see it, it would furnish a valid excuse to thousands of feeble-minded, epileptic and syphilitic persons to unite in marriage, in hopes of breeding healthful minds and strong constitutions in their progeny; whereas now, a sense of decency, from the knowledge of established facts in such cases, keeps them from committing the crime (as it would be) of matrimony.

Let us hope that the sixty-four or-five members of the Association who have the direct charge of the many thousand insane persons of America will frown down the promulgation of theories which are groundless, and would only result in the propagation of mental disease.

Let them devote themselves to the amelioration of the condition of the insane, rather than winning notoriety and fees in criminal courts. And when compelled by legal process to give testimony as experts, stick to the scientific facts as gathered by the best minds of the world for ages; and then this ghost of Guiteau will have no terrors for them.—*American Psychological Journal*.

Postal Cards are useful, but their use may be carried to extremes. The dentist gets himself over a postal and writes: “Dear Madam: Your teeth are done.” The hair man writes: “Madam: Your wig is ready.” The optician grins and scrawls: “Mrs —: I will send your glass eye to-morrow.”—*Courier-Journal*.

EDITORIAL.

CLOSE OF THE VOLUME.

The second volume of THE DENTAL PRACTITIONER closes with the present number. To the extent of our ability we have endeavored to present our readers with useful and instructive matter. That we have so well succeeded, is due as much to the generous support of our contributors as to our own efforts.

While we have no fault to find with other journals, we invite comparison with them, both in price and amount of useful and original matter presented.

To those who have furnished us with articles for publication, we extend most hearty thanks, and entertain the hope that they may continue to favor us and our readers in the forthcoming volume. Many of them have already expressed their intention to do so, but we should be pleased to hear from *all*. We also extend a cordial invitation to the profession at large to favor us with such thoughts as they would like to communicate to their brother practitioners. Any article calculated to elevate and instruct will be thankfully received, and cheerfully published. We do not ask for lengthy communications from those not accustomed to write; send along any single useful idea and receive the merited gratitude of some brother dentist whom you have assisted.

We take pleasure in announcing, and our patrons are to be congratulated, that the services of Dr. L. Ashley Faught have been secured as associate editor. This has been done, not that the duties of the present editor might be made lighter, but that THE DENTAL PRACTITIONER might be made that much better. Our united efforts shall be given to improving the character of our publication, and in furnishing the dental profession with a journal they cannot afford to do without.

Extend to us a helping hand by sending your communications as soon as prepared; and by sending your subscription for 1885 *at once*. A blank for this purpose will be found immediately preceding the advertising pages.

Send all communications, exchanges, and books for review to
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GIDEON SIBLEY,
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"THE BROMIDES IN DENTISTRY."

Credit should be given for the above titled article which appeared in our last issue to *The Independent Practitioner*. An oversight on the part of the printer prevented the credit appearing in its proper place.

RICHARDSON'S STYPTIC COLLOID.

The *Druggists' Circular* gives the following simple method of making this preparation :

Dissolve in ordinary collodion as much tannin as it will take up, and separate, by decantation, the clear liquid from the sediment.

The following proportions are said to be satisfactory :

Gun cotton	1 tr. ounce.
Alcohol	3 fl. ounces.
Ether	5 " "
Tannin	10 drachms.

THE QUERIST.

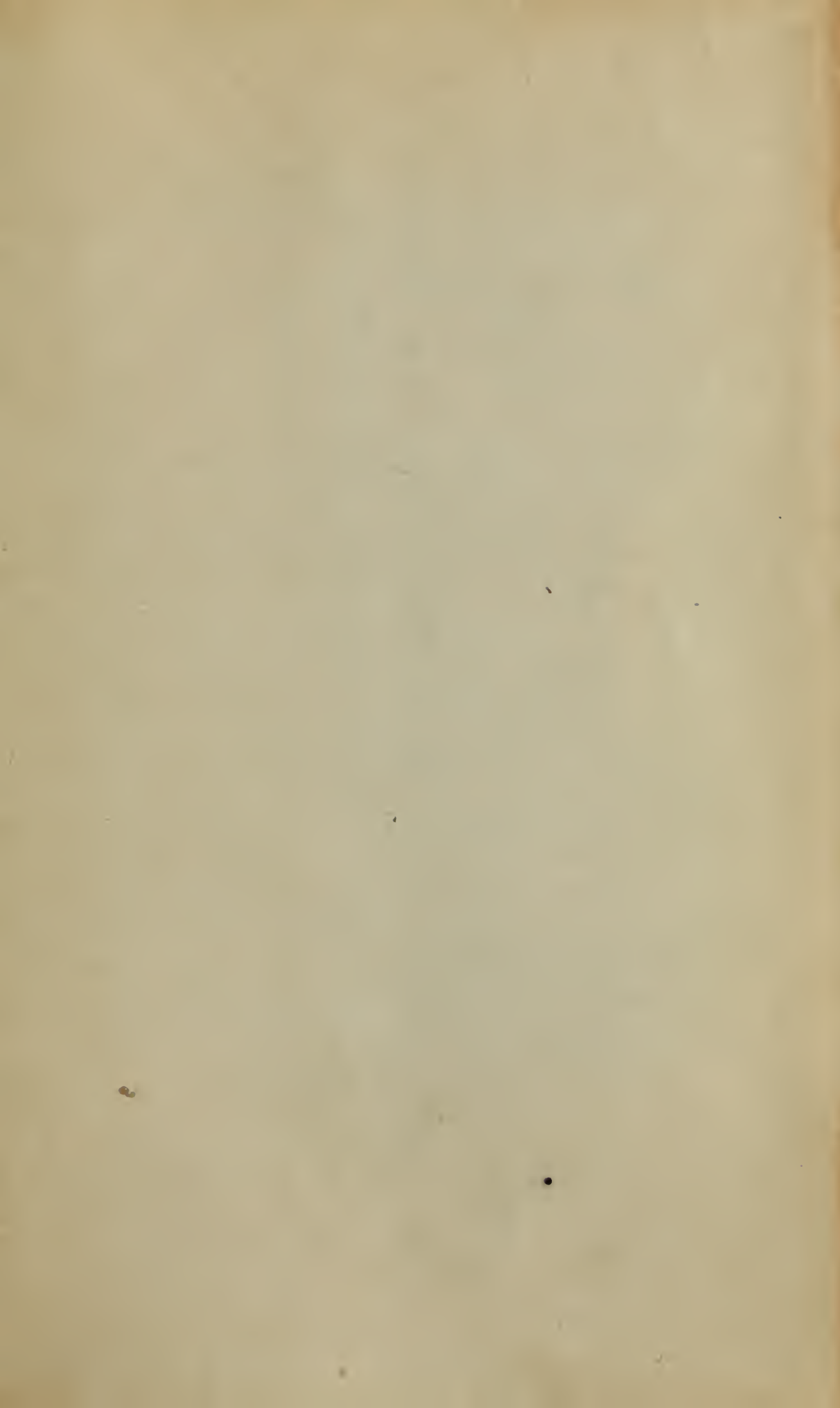
"Beginner," in the February number asks the following question : "Will some one who has had *experience*, tell me what he considers the best time, and the best way, to present bills for services rendered?" We would refer *all* "beginners" to the excellent article by Prof. Guilford "Concerning Bills" which appears on the first pages of this issue. It is a notorious fact that members of the dental profession, as a general thing, conduct their professional business with an utter disregard of those *business principles* which, in mercantile and other callings, are considered *essential* to financial success. That this remains a fact, is due entirely to ourselves, and we think the writer of the article is deserving of thanks for so far pointing out the remedy.

In the September number "X" presents the following query :

"Will some one please tell me how I am to overcome a trick, which an infant under my charge has acquired, of continually sucking its lower lip? The child is a year and a half old, and an invalid for the last nine months; does not take its food except in very small quantities at a time, and then always from a cup. I have suggested a return to bottle feeding for the beneficial effects of the nipple, but as the child's vitality is small, and feeding essential, this cannot be readily accomplished. I have tied a gag across the mouth, also the placing of obnoxious substances on the lip, etc., but without effect. The lower jaw is now beginning to perceptibly flatten, and the upper to protrude. Will such changes be likely to remain should the habit be overcome?"

We have received a communication from "X" stating that he had succeeded, by a very simple appliance, in entirely overcoming the difficulty.

He applied a narrow strip of adhesive plaster, commencing at the juncture of the skin proper with the epithelium of the lip, and continuing it downward to a point a short distance beneath the chin. This held the tissues in their normal position, and by no effort on the part of the child could they be drawn into the mouth.





H.R. Abbott
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